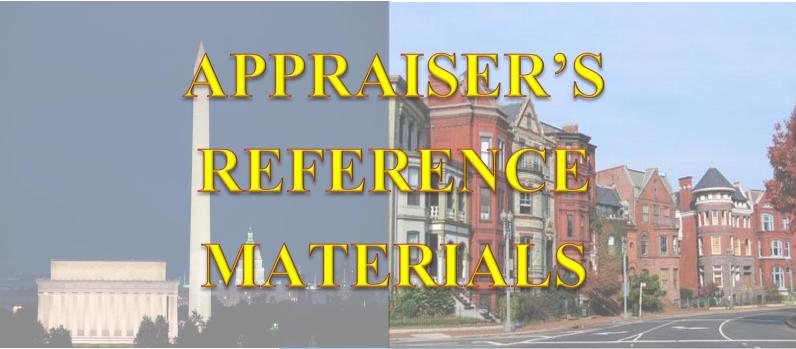


Real Property Tax Administration Office of Tax and Revenue 1101 4th St SW, Suite W550 Washington, DC 20024

Office of the Chief Financial Officer Office of Tax and Revenue Real Property Tax Administration

Real Property Assessment Division 2016 General Reassessment Program





March 2015

Disclaimer:

his publication represents a selected compilation of materials developed and used by the Real Property Assessment Division of the Office of Tax and Revenue during the 2016 revaluation of real property in the District of Columbia. As such, it does not purport to be an exhaustive collection of all assessment administration documents and materials. Its primary purpose is designed to be a quick reference guide for the real property assessor in his/her day-today work activities. Please feel free to call or fax your comments or suggestions to the contact numbers below. Thank you.

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2016 ARM

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OFFICE OF TAX AND REVENUE REAL PROPERTY TAX ADMINISTRATION INTER OFFICE MEMORANDUM

TO: Real Property Assessment Division

FROM: Olufemi A. Omotoso, Deputy Chief Appraiser

SUBJECT: Tax Year 2016 Reassessment

DATE: 3/6/2015

Dear Colleagues:

On Friday February 13, 2015 we again successfully completed our TY 2016 reassessment of real properties in the District of Columbia for *ad valorem* tax purposes. A total of 200,070 taxable and exempt properties have been reassessed at their fair and equitable market value as of January 1, 2015. We also picked up more than 700 parcels for TY 2015 2nd half supplemental assessment. The results of these exercises are testament to your dedication and hard work for which you have my thanks and gratitude.

The District of Columbia real estate market continues to show improvements; residential and commercial properties value increased at an average of 6.06% and 6.12% respectively for TY 2016 over the prior tax year values. This combined value increase is approximately \$12 Billion over TY 2015 value.

Real Property Tax Appeals Commission (RPTAC) recently concluded the 2nd level appeals for TY 2015 and, we are now receiving the decisions. A total of 4,509 petitions were filed with RPTAC; 38% were reduced and 50% were sustained. The reduced assessment resulted in 3.5% further reduction of TY 2015 1st level appeal assessed value for all properties. In coming weeks, we will begin the first level administrative appeals for TY 2016. I am confident that we are prepared to once again conduct the appeal hearings with good professional demeanor and, defend our assessed values skillfully.

TY 2015 was another year of significant progress for RPAD. We executed several complex initiatives and continued to make great strides in delivering on the CFO strategic initiatives by improving our relationship with the community and the District's real estate industry stakeholders. Last summer we deployed CAMA Vision 7 which we used to implement office properties mass appraisal model. We also recently modified the apartment income model in CAMA to recognize all non-market (section 8, LIHTC etc.) apartments and, we would have retail properties model in Vision 7 for TY 2017 reassessment, if not sooner.

On February 27, 2015, we deployed the newly developed electronic Income & Expense Report (online) filing system and electronic (online) first level administrative appeal filing on our website www.taxpayerservicecenter.com under "Forms". Both systems will make our operations more efficient by allowing us to have appeals processed with quick turnaround time; quick access to the most recent I&E in the short term and; a better data base in the long term.

I am also delighted to inform you that RPAD has adopted and implemented nearly all of the twenty-eight recommendations from the OIG performance audit of September 2012. Apart from organized continued education for our technical staff, later this year, I will be leading the efforts to conclude the development of a standardized Appraiser Certification Program for our technical staffs. This program will focus on professional growth through extended educational opportunities, training and testing.

In echoing our CFO, Jeffery DeWitt, customer service is a priority therefore; we must consciously remind ourselves that our motivation comes from the desire to impress customers (District of Columbia tax payers) and with that in mind, this year, we'll participate in more community outreaches, commercial properties industry group seminars and more importantly, promptly resolve taxpayers issues or request that are brought to our attention.

In closing, I want to thank all the entire staff of RPAD and, all the staff of Real Property Tax Administration under the leadership of our Director, Robert Farr, for our team efforts, continued improvements and steady progress. As I often say, you the staffs of RPAD are its greatest asset and, I am proud of you!

Explanation of Residential Market-oriented Cost Method

Note: The market-oriented cost approach to valuation is further explained and illustrated in the document, *Vision Residential Valuation Process*.

The market-oriented cost approach involved the following:

- 1. Extracting the CAMA data from approximately 10,080 qualified sales and importing it into SPSS.
- 2. Building a preliminary regression model that reflects the variables of the CAMA cost approach.
- 3. Reviewing the results of the preliminary regression to identify candidate market areas where the data was such to allow for successful regression analysis.
- 4. Eliminating outliers in the candidate areas to better ensure accuracy of the regression results.
- 5. Establishing time adjustment factors in order to analyze sale prices as of a specific point in time. The city was divided into 4 major market areas for time adjusting sale prices. Market data indicated monthly time adjustment factors over 32+ months (1/1/2012 through 9/23/2014) as follows:

	1/1/12 – 12/31/12	1/1/13 – 12/31/13	1/1/14 – 8/31/14
"Southeast" Neighborhoods (2, 3, 16, 18, 22, 28, 32, 33, 43)	0.30% /mo	1.10% /mo	0.50% /mo
"Northeast" Neighborhoods (5, 6, 7, 12, 14, 15, 17, 19, 31, 35, 36, 42, 47, 48, 49, 51, 52, 56, 66)	0.70% /mo	1.30% /mo	0.70% /mo
"Northwest" Neighborhoods (1, 4, 8, 11, 13, 21, 23, 24, 25, 26, 27, 29, 30, 34, 37, 38, 41, 50, 53, 54, 55)	0.20% /mo	0.80% /mo	0.60% /mo
"Downtown" Neighborhoods (9, 10, 20, 39, 40, 46)	0.50% /mo	1.20% /mo	1.00% /mo

- 6. Building a final regression model, using the time-adjusted sale price as the dependant variable.
- 7. Calibrating that model using non-linear multiple regression. Variables were included to extract land values from the market.
- 8. Reviewing the regression predicted values and removing extreme outliers.
- 9. Examining the predicted-values-to-time-adjusted-sale-price ratios for equitability with respect to lot size, building area, age, use, grade, and location.
- 10. Entering the coefficients indicated by the regression analysis back into the CAMA program's cost model.
- 11. Applying the cost model in CAMA and reviewing the resulting values to ensure they agreed with the predicted values produced by the regression.
- 12. Performing sales analysis to determine if acceptable levels of assessment were achieved and adjusting rates as necessary.
- 13. Applying model to inventory and producing old-to-new (outlier) reports and percent change detail analysis reports for appraiser review.
- 14. Incorporating oversight of the computer aided procedure by our professional staff cited in the <u>2016 Valuation Review Process</u>. All projected market value changes are submitted to the staff for their review, refinement, and adjustments.

Explanation of Residential Condominium Valuation Methods

Regression:

The sales comparison approach using multiple regression analysis involved the following:

- 1. Extracting the CAMA data of qualified sales and importing it into SPSS.
- Reviewing data to determine what regimes were candidates for regression analysis. As a rule, regimes could be valued using regression where the physical data attributes were complete and adequate sales data existed. Regimes without adequate sales, but with complete data, could be clustered with regimes having similar profiles to allow regression to be used.
- 3. Exploring the data to determine what variables would likely contribute to the model.
- 4. Building a base model.
- 5. Reviewing the results of the base model and eliminating outliers in the candidate regimes to better ensure the accuracy of the regression results.
- 6. Establishing time adjustment factors in order to analyze sale prices as of a specific point in time.
- 7. Building a final regression model, using the time-adjusted sale price as the dependant variable.
- 8. Calibrating that model using multiple regression analysis.
- 9. Applying the model to the sales, reviewing the predicted values and removing extreme outliers.
- 10. Performing sales analysis to determine if acceptable levels of assessment were achieved and adjusting rates as necessary.
- 11. Extracting condominium inventory data and importing into SPSS.
- 12. Applying model to inventory, and exporting the values back to CAMA, allocating 30% of predicted value to land and 70% of predicted values to improvements.
- 13. Producing percent change reports for appraiser review.
- 14. Identifying necessary corrections to data and location adjustments.
- 15. Repeating process of extracting data, applying model, and exporting back to CAMA to include corrections.

Final Appraiser Review:

At the conclusion of the valuation, several reports are produced showing the results of the reassessment. These reports, reflecting proposed market value changes, are submitted to the assessment staff for their review, refinement and adjustment in accordance with the processes outlined in the <u>2016 Valuation Review Process</u> document.

The Condominium Regression Model:

ESP= (348.78 * 800 * SIZE_ADJ * EFFIC_ADJ * COND_ADJ * VIEW_ADJ * BATH_ADJ + PARK_ADJ) * LOC_ADJ.

<u>Estimated Sale Price (ESP)</u> – the value predicted by the model for the parcel, given the variables in the model, the coefficients of those variables and the attributes of the subject unit.

Base Rate (348.78) – base size rate (constant)

Base Size (800) - base unit size (constant)

Size Adj. - the adjustment for the unit's size being larger or smaller than the base size

The base unit size is 800 sf. The formula for calculating the size adjustment is: Unit size up to 2000 sf: $(SIZE/800)^{.66665}$

Unit size larger than 2000 sf: (2000/800)^{.66665} * (SIZE/2000)^{.90637}

See graph titled Condominium Size Curve.

Efficiency Adj. – if the unit is an efficiency unit, a 0.93 adjustment is applied.

Condition – adjustment for the unit's physical condition

(1) Poor	.75
(2) Fair	.90
(3) Average	1.00
(4) Good	1.08
(5) Very Good	1.16
(6) Excellent	1.26

View - adjustment for the unit's view

(1) Poor	.85
(2) Fair	.94
(3) Average	1.00
(4) Good	1.05
(5) Very Good	1.09
(6) Excellent	1.15

Bath Adj. - adjustment for the unit's number of baths more than one.

```
BATH_ADJ = 1 + (((FULLBATH - 1) + (.5 * HALFBATH)) * .08)

Example: 2 \frac{1}{2} baths: 1 + (((2 - 1) + (.5 * 1)) * .08) = 1.112
```

3 baths: 1 + (((3-1) + (.5*0)) * .08) = 1.16

Parking – adjustment for Limited Common Element parking

<u>Outdoor</u>	Covered	<u>Indoor</u>	
14,000	19,600	25,200	subject to location adjustment

Location – adjustment for unit's geographic location

Location adjustments were made for neighborhood, sub-neighborhood, cluster of regimes, or unique regime. The actual location adjustment for any unit may be the combination of one or more of those location factors.

Explanation of Cooperative Valuation Method

Cooperatives are a type of residential property. In a cooperative, a corporation owns the property and the shareholders can use the unit or units represented by their shares. In Washington, DC, cooperatives are assessed according to statue by one of three methods. The first method is by calculating the cumulative value of the leasehold interests (by sales). The second method is to treat the project as if it was a condominium project and reduce the value by 30%. After arriving at either of these values, we further reduce the value an additional 35% according to the statue. The third method is available only to Limited Equity Cooperatives.

Limited-equity cooperatives (LEC) are defined in the DC official Code in § 47-802 (11) as, "one required by a government agency or non-profit to limit the resale price of membership shares to keep the housing affordable for low and moderate income buyers." The assessed value of the improved real property owned by an LEC is the lesser previously described approaches or the annual amount residents pay in carrying charges (excluding subsidies), divided by an appropriate capitalization rate as determined by the Office of Tax and Revenue (OTR).

For tax year 2016, we reviewed all the complexes with sales information and calculated the sales prices per square foot taking into consideration remodeling and renovations from building permits and information from listings. Sale information is collected from the Recorder of Deeds (Transfer of Economic Interest Tax Return Cooperative Only forms and the Multiple Listing Service). Only minor time adjustments were deemed necessary for this period. For previous years matched pairs sales were used to calculate the typical percentage increase per month. Multiplying the square footage of the units by the adjusted rates (occasionally they were adjusted for view or parking as sales indicated) would result in the aggregate values which were further reduced for personal property and the result multiplied by 65% to arrive at the assessment.

In complexes where there were no sales, we treated them as if they were condominiums. To do this we would find a condominium as similar as possible to the subject and use the square foot rate that seemed to be appropriate to the square foot of the units or the estimated square footage. We would adjust the square foot rate if the complexes weren't in similar condition or location. We would multiply the rate times the square footage and reduce the result by 30% and then by 35%. The complexes without sales were typically limited equity coops or very small complexes.

2016 Valuation Review Process

As part of the valuation process, initial assessments for all properties will be estimated and preliminary reports will be generated summarizing the results of the valuation effort. Your review, modification and approval of the proposed assessments indicate that they are representative of the estimated market value.

The Valuation Review Process is designed to allow for a thorough review of the new values for the upcoming tax year before notices are sent to property owners.

The purpose of this review is two-fold. First, it allows us the opportunity to correct any errors that may have occurred in the valuation process before they cause administrative difficulties (i.e. public relations problems, unnecessary appeal activity, and the like). Second, the process provides feedback to the CAMA modeling and calibration process.

The process involves examining all assessments with particular attention given to the outliers in a relatively short period of time. As such, the appraiser is primarily concerned with arriving at a reasonable final value estimate for all accounts by focusing attention to the properties on the outlier list, known as the Old-to-New Report. Briefly, the process involves the appraiser of record reviewing a selected group of properties in their neighborhood that, on first inspection, appear to be over or under appraised based on previously determined criteria such as sales price, percent change reports, etc. When this review indicates correct values, no records are changed; however, if the value requires modification, the appraiser will make changes in the CAMA record and on the PRC to correct the situation. If he/she discovers minor discrepancies in the data, it should be noted and corrected or revisited during another inspection program at the discretion of the appraiser. The purpose of this program is not to engage in a detailed analysis of accounts but rather to expeditiously review outlier accounts to improve our estimate of market value.

NOTE: It is advisable that the appraiser has a solid knowledge of CAMA valuation before proceeding with the review process. Please refer to the most current version of the "CAMA Residential Construction Valuation Guideline." Along with the report entitled "VISION CAMA Valuation," the guideline will serve as a tutorial for the methodology employed within CAMA for valuing residential property.

Following are some general guidelines to consider while conducting review activity.

1. The valuation review process begins with CAMA producing two reports for each (sub) neighborhood. The first report is the "Old to New" report that shows the old value, new value, percent and dollar change in value from the current assessment to the proposed assessment for specific properties that constitute outliers in the (sub) neighborhood. Included are the individual PRCs for each corresponding account listed in the report where the proposed value increased 10 percentage points or more above the median percent change for the (sub)

neighborhood or decreased 10 percentage points or more below the median percent change. The second report, Percent Change Detail Analysis, contains more specific detail about all of the accounts in the selected (sub) neighborhood.

- The appraiser will be provided these two individual reports for each of the assigned (sub) neighborhoods, along with individual PRCs from the Old-to-New report.
- Before individual reviews of the Old-to-New report begins, the appraiser will examine the Percent Change Detail Analysis report for signs of irregularities or general discrepancies based on their knowledge of their neighborhoods. The review entails several tasks as follows:
 - A. Review the "A/S Ratio", when present. The ratios are calculated based on sales over a long period of time. Pay particular attention to sales that occurred during calendar year 2014. These sales will give a better picture of the most recent assessment/sales ratio reflective of the current market conditions. Where the assessed values are not close to the sales prices, fully examine the record, and consider making appropriate changes. The "VC" flag can be used to indicate that a sale has been previously disqualified, possibly rendering an unusual ratio less meaningful. Additionally the review of the "VC" code with an unusual ratio may indicate that a previously qualified sale needs to be now disqualified.
 - B. Examine the "Grade" of the accounts. If there is a two or more departure of grade between the account and the typical grade in the (sub) neighborhood, the appraiser may be concerned.
 - C. Look for extremes in the "Cond" and "% Good" data. Again, on average, these should be relatively consistent throughout the (sub)neighborhood.

The preferred process to follow when conducting individual reviews of accounts contained on the Old-to-New report (residential only) is as follows:

1. The appraiser will examine each record that appears on the "Old to New" report. Each record has been selected for inclusion because the proposed value decreased 3 percentage points or more below the median percent change for the (sub) neighborhood or increased 10 percentage points or more above the median percent change for the (sub) neighborhood. However, PRCs were printed for records where the proposed value decreased 10 percentage points or more below the median percent change for the (sub) neighborhood or increased 10 percentage points or more above the median percent change for the (sub) neighborhood. As a result, there will probably be more accounts listed on the "Old to New" report than printed PRCs. These records constitute the "outliers" of

the (sub) neighborhood. The values may be correct or erroneous, and the purpose of this process is to make that determination.

- The appraiser, exercising his or her professional skill and judgment, first will conduct a "desk review" of each account appearing on the report. If the value does not seem reasonable perform the following actions:
 - A. Examine the PRC for any missing or incorrectly coded data contained in the Construction Detail section.
 - B. In the Building Summary Section, check the sq. ft. sizes of the areas listed for accuracy and reasonableness.
 - C. Check the Building Cost Section for correct Effective Area, Special Feature RCN and % Good. If any are erroneous, examine their respective sections for details.
 - D. Examine the Special Features/Amenities and Detached Structures sections for accuracy.
 - E. On the front of the PRC, check the Land Line Valuation Section for proper size and value.
 - F. Make use of the Pictometry tool available in the Mobile Video Viewer or the Mapping Apps folder.
- 3. Several results may occur from the desk review:
 - A. The desk review indicates the value is correct. In this case, note in the column adjacent to the account "OK", your initials and the date.
 - B. The desk review indicates an erroneous value discovered by examining various reports and records (i.e. Percent Change, CAMA record, etc). In this case, the appraiser makes the correction in the CAMA record, notes the changes made on the PRC in red, notes on the Old-to-New report the new amount, your initials and the date.
 - C. The desk review is inconclusive and a field inspection is in order.

An example may help illustrate scenario "A", the first situation. Let's say the Old-to-New report indicates an account has jumped 400%, from \$300,000 to \$1,200,000! That amount of increase seems absolutely erroneous. To determine a possible explanation, the appraiser begins the review by locating the account on the Percent Change Detail Analysis report. After finding the account, the appraiser notices that the properties close to the account have only increased by approximately 20%, the median for the neighborhood. They are approximately similar to the account in size, grade, and condition, but their prior year's value was \$900,000, while the outlier was only \$300,000. The appraiser would be safe to conclude that the account was grossly under-assessed last year. The low "old" value caused the large increase in value, not an over-assessed new value. To complete the desk review, the appraiser notes on the Old-to-New report, "OK", his/her initials and the date.

Scenario "B", the second situation, may find the appraiser reviewing an account that also appears to be over-assessed based on the large increase from old to new value. The appraiser again locates the account on the Percent Change Detail Analysis report and reviews the account in context to other (sub)neighborhood properties. The appraiser discovers that most of the data about the account is similar to the other properties – same use code, similar size, percent good, etc. However, where most of the properties are listed at Grade 4, the account is Grade 7. This would help explain the likelihood that the account is over-assessed. The appraiser would make the change to the grade in the CAMA system, note the new value, make the change on the PRC in red, and document the change on the Old-to-New report by writing the new value, his/her initials and the date in the far right column of the report next to the account.

The last scenario, "C", results when the appraiser can not immediately explain the reason an account appears on the Old-to-New report. He/she should set aside accounts that will require field inspection and at a point, go to the field for inspection. Upon conclusion of the inspection, the appraiser will document the results in a similar manner to the desk reviews. The actual schedule for field- work will vary and will be coordinated by the appraiser and his/her supervisor.

Records Retention, Old-to-New Reports (residential only) and Percent Change Detail Analysis Reports (residential, residential condominium, commercial) are to be retained for two years, so that the current and proposed years are readily available for review. The retained reports will reflect all necessary dates and initials, indicating the required review and approval. The supervisor for each unit will be responsible for ensuring compliance with the review process within their unit, and for the retention of their unit's reports for the appropriate period of time. Reports may be discarded when they are no longer the current or proposed year. For example, upon the completion of the tax year (TY) 2016 revaluation, the TY 2014 reports may be discarded, and the reports from TY 2014 (current) and TY 2016 (proposed) must be on file.

Assessment Roll and Property Owner Notification

Upon completion of the annual reassessment and following the detailed final edit by appraisers, the CAMA manager runs a series of edit programs that makes final edits and consistency checks of all accounts. Any problems are returned to appraisers for review or correction. Following corrections, the CAMA Manager completes a final edit and uploads the required information via CAMA extract to the Integrated Tax System.

Annual Assessment Notices to notify property owners may be printed from ITS in batch mode or an extract may be produced for an outside vendor to produce assessment notices.

Market Approach to Land Valuation in Costed Neighborhoods

A non-linear regression model was used to calibrate the residential cost model. It was developed from citywide market analysis of qualified sales. One of the variables calibrated by the model was the land rate. Base land rates were adjusted for location in each subneighborhood. Regression analysis calibrated the land and building components of the model at the same time using the same market data. Additionally, the analysis established four size curves for land area. The four size curves indicate that as lot sizes increase. values also increase. However, with land size curve "3" values increase more rapidly with size as compared to land size curve "2". Land size curve "1" increases at the smallest rate. In all three cases, land rates decrease as land area increases. Market data supports both curves up to approximately 5 times the standard lot size. However, in application, rates are assumed to continue similar decreases beyond that point. Each sub-neighborhood was assigned to one of the three land size curve groups based upon analysis of the qualified sales data. It is important to keep in mind, that land value is only one component of a number of variables that contribute to a property's sale price and/or estimated market value. In practical terms, it is the combination of all of a property's attributes, nuances in the market, and buyer preference that contribute to the final market value of a property. It is difficult to isolate some of the contributory elements and value them separately with certainty. Nevertheless, it is required in the District of Columbia that land and building values be separated for assessment purposes. Because of this requirement, it is necessary to create land rate tables for use in the District's CAMA product. These rates were developed in the regression analysis referred to above. The results of the analysis are applied to the market-oriented cost model in the Vision CAMA system.

Land is calculated in Vision using the following algorithm:

Area * ((Base Rate * Size Adj) + \$ Special Adj 1 + \$ Special Adj 2) * % Special Adj 1 * % Special Adj 2

Where:

Area is the lot size expressed in square feet.

Base Rate is the market-derived rate for each sub-neighborhood.

Size Adj is the market-derived adjustment made for the lot size as it relates to the standard size lot for the sub-neighborhood. The look-up along the size curve is based on the ratio of the subject lot size to the standard lot size.

- % Special Adj is any adjustment present that is expressed and applied as a percentage adjustment to the rate.
- \$ Special Adj is any adjustment present that is expressed and applied as a dollar adjustment to the rate.

Land Rate Development Example

A hypothetical example may help illustrate how regression analysis develops the base land rates and subsequent adjustments to the rates. Suppose two properties in a neighborhood were recently sold. The first, comprised of just a house without land, sold for \$400,000. The second property had the identical house but with a lot of 2,000 square feet (sf.), the typical size for that neighborhood. It sold for \$600,000. In a process similar to adjusting comparables in the sales comparison approach to value, regression analysis identifies the contributory value of the lot to the second property and sets its value to \$200,000. The base land rate of \$100 per sf (\$200,000/2,000 sf) will be the basis for lot values for all other properties in that (sub)neighborhood.





Next, let us assume another house sells. On this occasion, the house is identical to the previous sale in all respects, except the lot size was 4,000 sf instead of the "standard" (base lot) size of 2,000 sf. This house recently sold for \$700,000, \$100,000 more than a property with the standard lot size. The land component of this sale is \$300,000.





This sale helps develop size adjustments for non-standard lots in the neighborhood. If no adjustment was made to the land rate, the land component of this sale would be \$400,000 (4,000 sf * \$100). The appraisal would overstate the value of the property by \$100,000. An adjustment to the base land rate is necessary to recognize the market response to the departure from the standard lot size. Regression analysis would calculate the appropriate land size adjustment necessary to properly determine the contributory value of the larger lot. Dividing the market-indicated value of the lot by the unadjusted appraised value of the lot (\$300,000/\$400,000) yields a factor of 0.75. In this example, CAMA would follow the model:

Appraised land value = Area * (Base Rate * Size Adj)

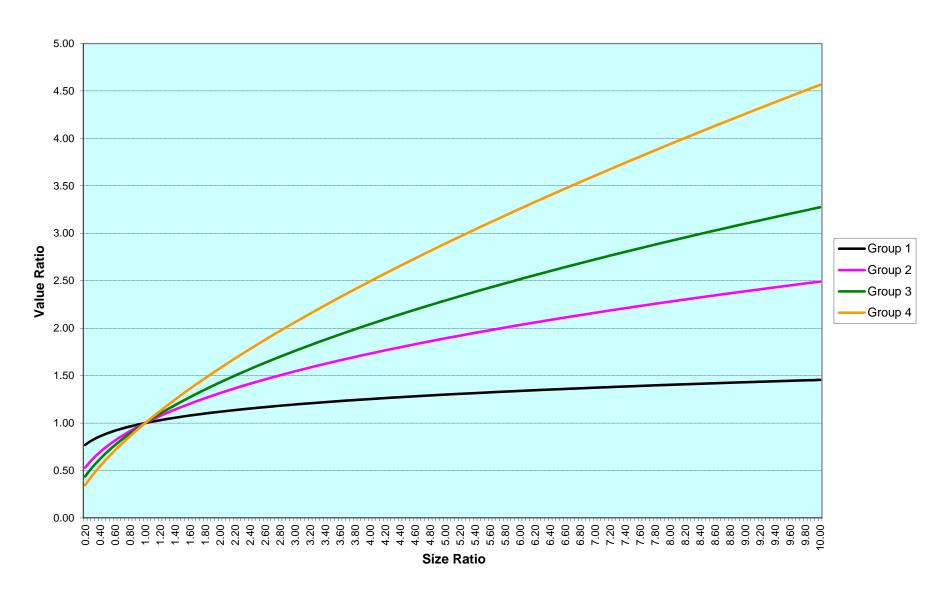
Residential Base Land Rates By Neighborhood

NBHD	Base Lot Size	Base Rate	Base Lot Value	Size Curve
1A	4000 sf	\$108.91	\$435,640	LG1
1B	5000 sf	\$89.25	\$446,250	LG1
1C	5000 sf	\$89.76	\$448,800	LG1
2A	2000 sf	\$55.72	\$111,440	LG1
2B	2000 sf	\$60.93	\$121,860	LG1
3	2000 sf	\$52.17	\$104,340	LG1
4A	6700 sf	\$95.13	\$637,370	LG3
4B	10000 sf	\$81.44	\$814,400	LG4
4C	8000 sf	\$95.58	\$764,640	LG4
5A	1700 sf	\$98.78	\$167,930	LG1
5B	1700 sf	\$86.05	\$146,290	LG1
6A	4000 sf	\$66.59	\$266,360	LG1
6B	4000 sf	\$63.37	\$253,480	LG1
6C	2000 sf	\$106.88	\$213,760	LG1
6D	4000 sf	\$62.48	\$249,920	LG1
6E	3000 sf	\$75.53	\$226,590	LG1
7A	2000 sf	\$94.03	\$188,060	LG1
7B	3000 sf	\$68.54	\$205,620	LG1
7C	3000 sf	\$73.01	\$219,030	LG1
7D	5000 sf	\$50.12	\$250,600	LG1
7E	2000 sf	\$120.42	\$240,840	LG1
8A	2000 sf	\$218.76	\$437,520	LG1
8B	2000 sf	\$234.97	\$469,940	LG1
9A	1400 sf	\$316.98	\$443,770	LG2
9B	1400 sf	\$327.65	\$458,710	LG2
9C	1400 sf	\$332.37	\$465,320	LG2
10	1400 sf	\$408.82	\$572,350	LG1
11A	5000 sf	\$89.00	\$445,000	LG1
11B	5000 sf	\$87.24	\$436,200	LG1
11C	5000 sf	\$86.18	\$430,900	LG1
11D	5000 sf	\$80.86	\$404,300	LG1
11E	5000 sf	\$77.67	\$388,350	LG1
12	4000 sf	\$58.41	\$233,640	LG1
13	5000 sf	\$146.86	\$734,300	LG4
14	9000 sf	\$39.20	\$352,800	LG1
15A	1800 sf	\$192.52	\$346,540	LG1
15B	1800 sf	\$174.44	\$313,990	LG1
15C	1800 sf	\$165.38	\$297,680	LG1
15D	1800 sf	\$183.53	\$330,350	LG1
15E	1800 sf	\$204.98	\$368,960	LG3
16A	2400 sf	\$43.00	\$103,200	LG1
16B	2400 sf	\$43.84	\$105,220	LG1
16C	2400 sf	\$42.22	\$101,330	LG1
17	6000 sf	\$62.70	\$376,200	LG1
18A	3000 sf	\$40.56	\$121,680	LG1
18B	3000 sf	\$36.42	\$109,260	LG1
18C	3000 sf	\$36.09	\$108,270	LG1
18D	3000 sf	\$36.70	\$110,100	LG1

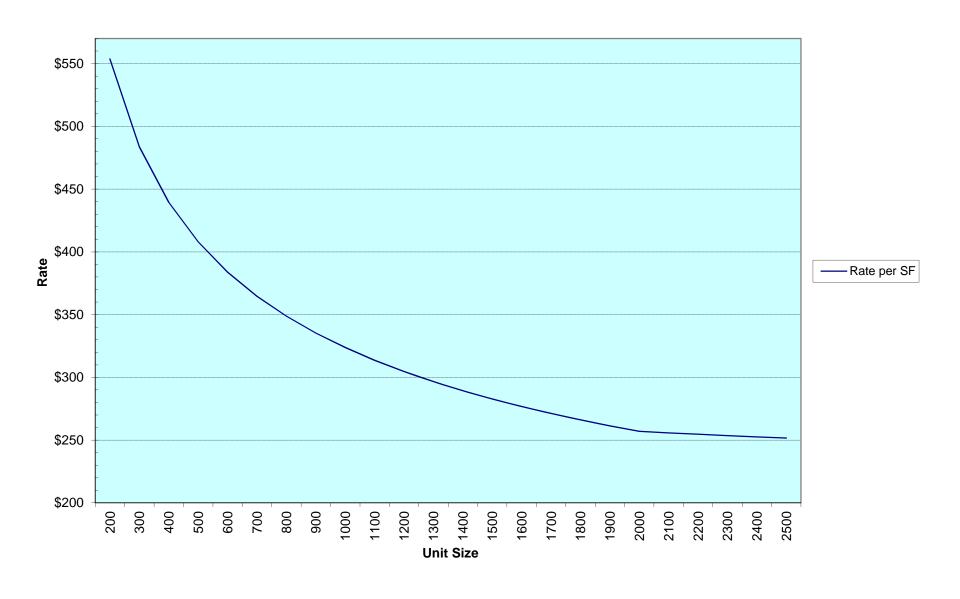
NBHD	Base Lot Size	Base Rate	Base Lot Value	Size
18E	3000 sf	\$37.81	\$113,430	LG1
19A	1800 sf	\$190.71	\$343,280	LG1
19B	1800 sf	\$148.13	\$266,630	LG1
20	1000 sf	\$483.44	\$483,440	LG1
21	9000 sf	\$74.41	\$669,690	LG3
22A	3000 sf	\$35.12	\$105,360	LG1
22B	2400 sf	\$45.03	\$108,070	LG1
22C	3000 sf	\$35.32	\$105,960	LG1
22D	2400 sf	\$48.10	\$115,440	LG1
23	2500 sf	\$167.84	\$419,600	LG1
24	2400 sf	\$210.58	\$505,390	LG1
25A	1800 sf	\$257.65	\$463,770	LG3
25B	1800 sf	\$318.86	\$573,950	LG3
25C	1800 sf	\$283.50	\$510,300	LG3
25D	1800 sf	\$299.04	\$538,270	LG3
25E	1800 sf	\$330.24	\$594,430	LG4
25F	2000 sf	\$303.79	\$607,580	LG4
25G	2000 sf	\$310.90	\$621,800	LG3
25H	2000 sf	\$296.18	\$592,360	LG4
251	800 sf	\$487.66	\$390,130	LG3
25J	1200 sf	\$386.47	\$463,760	LG4
26	1700 sf	\$257.72	\$438,120	LG1
27	9000 sf	\$43.43	\$390,870	LG1
28A	2400 sf	\$45.88	\$110,110	LG1
28B	5000 sf	\$28.37	\$141,850	LG1
28C	5000 sf	\$29.76	\$148,800	LG1
29A	2000 sf	\$241.22	\$482,440	LG4
29B	2000 sf	\$248.68	\$497,360	LG4
29C	2000 sf	\$267.57	\$535,140	LG3
30A	5000 sf	\$105.38	\$526,900	LG4
30B	5000 sf	\$111.29	\$556,450	LG4
30C	7000 sf	\$93.78	\$656,460	LG4
31A	1800 sf	\$193.05	\$347,490	LG1
31B	1800 sf	\$185.67	\$334,210	LG1
32A	5000 sf	\$26.48	\$132,400	LG1
32B	2000 sf	\$51.56	\$103,120	LG1
33A	2000 sf	\$50.15	\$100,300	LG1
33B	2000 sf	\$53.75	\$107,500	LG1
34	9000 sf	\$106.46	\$958,140	LG4
35	5000 sf	\$45.83	\$229,150	LG1
36A	2000 sf	\$204.80	\$409,600	LG1
36B	2000 sf	\$219.38	\$438,760	LG3
36C	1600 sf	\$243.48	\$389,570	LG1
37	3000 sf	\$155.38	\$466,140	LG3
38	5000 sf	\$135.24	\$676,200	LG4
39A	1500 sf	\$218.07	\$327,110	LG1
39B	1500 sf	\$242.57	\$363,860	LG1
39C	1500 sf	\$266.57	\$399,860	LG1

NBHD	Base Lot Size	Base Rate	Base Lot Value	Size Curve
39D	1500 sf	\$207.98	\$311,970	LG1
39E	1200 sf	\$262.91	\$315,490	LG1
39F	1200 sf	\$275.99	\$331,190	LG1
39G	1500 sf	\$179.27	\$268,910	LG1
39H	1500 sf	\$156.53	\$234,800	LG1
39J	1500 sf	\$250.41	\$375,620	LG1
39K	1500 sf	\$272.97	\$409,460	LG1
39L	1200 sf	\$266.98	\$320,380	LG1
39M	1500 sf	\$279.85	\$419,780	LG1
40A	1400 sf	\$225.68	\$315,950	LG1
40B	1400 sf	\$259.75	\$363,650	LG1
40C	1600 sf	\$288.96	\$462,340	LG2
40D	1600 sf	\$336.40	\$538,240	LG2
40E	1600 sf	\$319.55	\$511,280	LG2
40F	1200 sf	\$346.61	\$415,930	LG2
40G	1600 sf	\$264.73	\$423,570	LG1
41	5000 sf	\$99.92	\$499,600	LG2
42A	1800 sf	\$156.08	\$280,940	LG1
42B	1800 sf	\$138.31	\$248,960	LG1
42C	1800 sf	\$132.26	\$238,070	LG1
43A	2000 sf	\$56.97	\$113,940	LG1
43B	2000 sf	\$53.20	\$106,400	LG1
43C	2000 sf	\$55.00	\$110,000	LG1
43D	2000 sf	\$55.57	\$111,140	LG1
46	1200 sf	\$299.80	\$359,760	LG1
47	3000 sf	\$65.64	\$196,920	LG1
48	5000 sf	\$59.81	\$299,050	LG1
49A	3000 sf	\$96.32	\$288,960	LG1
49B	3000 sf	\$88.77	\$266,310	LG1
49C	3000 sf	\$85.08	\$255,240	LG1
50A	10000 sf	\$72.98	\$729,800	LG3
50B	6000 sf	\$91.59	\$549,540	LG2
50C	14000 sf	\$63.39	\$887,460	LG3
50D	15000 sf	\$76.09	\$1,141,350	LG3
51	3000 sf	\$77.86	\$233,580	LG3
52A	1800 sf	\$124.23	\$223,610	LG1
52B	1600 sf	\$135.98	\$217,570	LG1
52C	1600 sf	\$119.58	\$191,330	LG1
53	5000 sf	\$96.23	\$481,150	LG1
54A	6000 sf	\$123.27	\$739,620	LG4
54B	1000 sf	\$340.82	\$340,820	LG1
55	6000 sf	\$105.43	\$632,580	LG2
56A	5000 sf	\$46.98	\$234,900	LG1
56B	5000 sf	\$39.14	\$195,700	LG1
56C	5000 sf	\$41.13	\$205,650	LG1
56D	5000 sf	\$37.70	\$188,500	LG1
66	5000 sf	\$43.75	\$218,750	LG1

Residential Land Size Curves



Condominium Size Curve



2016 Vision CAMA Residential Valuation Process

he market-derived cost approach to the valuation of real estate follows the generic formula of **Market Value = ((RCN-LD) + land value)**, where **RCN** is Replacement Cost New of the improvements and **LD** means Less Depreciation. When properly developed and calibrated, this approach is a reliable indicator of market value especially suited to mass-appraisal CAMA systems.

The following exercise will attempt to illustrate how the Vision[©] CAMA system utilized by the District of Columbia, calculates values using the above model. The first section will illustrate the development of the Replacement Cost New of a typical residence, the second will show the steps involved in determining the amount of depreciation that has accrued to the residence, and the last section will illustrate land or lot valuation.

Replacement Cost New

The Vision® CAMA system arrives at a RCN value for residential properties based on a market-calibrated hybrid cost model. The hybrid nature of the model simply means that the model employs both additive and multiplicative variables in its design and specification. The nature of the model will become clearer as we proceed through this exercise. Please also be aware that a model is dynamic in both its specifications and calibration. The specifications, those cost elements that comprise the model, may change from time to time based upon research and market conditions. As you may discover, the dollar rates, or calibrations, contained here most likely are different from the current model in use. The model used in this exercise is as follows:

Building RCN = [(Base Rate + Σ ABRV_n) * Effective Area * Size Adjustment + Σ AFRV_n] * (MV₀ * MV₂ * ... * MV_n)

Where:

RCN = Replacement Cost New
Base Rate = \$ rate based on use code
ABRV = Additive Base Rate Variables
Effective Area = Adjusted SF area of improvement
Size Adjustment = Adjustment factor for deviation from base size
AFRV = Additive Flat Rate Variables
MV = Multiplicative Variables

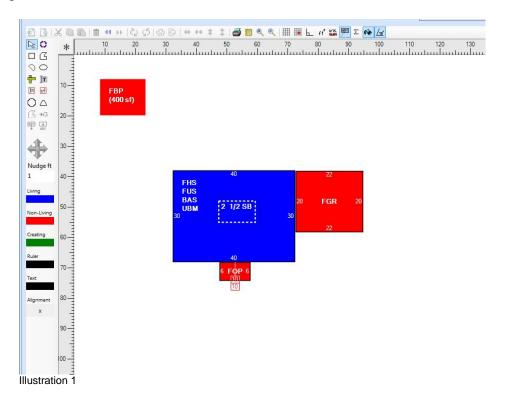
Several items will be helpful while examining the features of the cost model and they are collected as Appendix "A" of this document. You will need to refer to them often during this exercise. They include the following:

- Sample home's Property Record Card (PRC)
- Cost.dat printout of the sample home
- 2007 CAMA Residential Construction Valuation Guideline

1. First, let's illustrate the calculation of the Effective Area of our sample home.

Building RCN = [(Base Rate +
$$\sum$$
 ABRV_n) * Effective Area * Size Adjustment + \sum AFRV_n] * (MV₀ * MV₂ * ... * MV_n)

Illustration 1 shows the CAMA sketch of the sample home we'll be using throughout this exercise.



It is described as a 2½ story single-family detached residence, with basement. It is brick veneer, frame construction with a two-car garage and small porch across the front. CAMA provides the information about the sizes of the various areas of the house in the depreciation section.

Group R11 Base Rate 133.84 Eff Base Rate \$474.1 Net Other Adj \$223,2		10		Effective Area	\$1,881,638	
				RCN		
				Bldg % Good		
				RCNLD		
Livi	ing Area	/GBA 3000				
	Code	Description	Gross	Living	Eff Area	
	FHS		1200	600	600	
	FUS		1200	1200	1200	
	BAS		1200	1200	1200	
	UBM		1200	0	300	
	FGR		440	0	198	
	FBP		400	0	0	

The Effective Area is comprised of the totals of the base area (Main Building Area @ 1,200 SF), the finished second floor area (Upper Story, Finished @ 1,200 SF), the adjusted area of the finished half story (Half Story, Finished @ 50% of 1200 SF), the adjusted area of the garage (Garage, Attached @ 45% of 440 SF), and the adjusted area of the unfinished basement (Basement, Unfinished @ 25% of 1,200 SF).

The adjustments to the finished half story, garage and unfinished basement take into account these areas are not as expensive as the finished main building area. For example, if the base rate for the finished main building area is \$100/SF, the rate for the garage area may only be \$45/SF. The RCN value of the garage would be calculated as follows:

RCN of Garage = \$19,800 or (440 SF * \$45)

Another way to state the same situation is to adjust the size of the garage to 40% of its measured size and then multiply the resulting, *or effective*, size by the base rate of \$100/SF:

RCN of Garage = \$19,800 or [(440 * .45) * \$100]

Both methods arrive at the same value for the garage. The first method is more intuitive and easier to explain to taxpayers as it adjusts for the differences in costs for the various areas. The second method again provides the same results but is much easier to model and calculate within a CAMA system, thus the effective area calculations shown here represent the methodology employed in the Vision[©] CAMA system.

Let's take a moment to examine the treatment of the basement in this house. The house has a full-sized basement comprised of 1,200 SF. In addition, the basement contains a finished area (400 SF), and the balance as unfinished. Illustration 3 shows the contribution of the unfinished portion to the effective area calculation. However, notice that the finished portion of the basement is not included in the effective area calculations. The value attributed to this finished area is accounted for as an Additive Flat Rate Variable later in the valuation model. The reason for this methodology is to ensure that the effective area is not erroneously overstated by the amount of any finished area in the basement.

Code	Description	Gross	Living	Eff Area
FHS		1200	600	600
FUS		1200	1200	1200
BAS		1200	1200	1200
UBM •		1200	0	■300
FGR		440	0	198
FBP -		400	0 —	• 0
FOP		60	0	0

Illustration 3

Finally, the Gross Area shown in Illustration 3 is the total unadjusted size of all the areas that are a part of, and attached to, the home. The Living Area is the unadjusted size of the actual finished living area of the home.

With the inclusion of the Effective Area calculation, our cost model now looks like this:

```
Building RCN = [(Base Rate + \sum ABRV<sub>n</sub>) * 3,498 * Size Adjustment Effective Area + \sum AFRV<sub>n</sub>] * (MV<sub>0</sub> * MV<sub>2</sub> * ... * MV<sub>n</sub>)
```

2. Next, let's look at the selection of the Base Rate for the sample home.

```
Building RCN = [(Base Rate + \sum ABRV_n) * Effective Area * Size Adjustment + <math>\sum AFRV_n] * (MV_0 * MV_2 * ... * MV_n)
```

The Base Rate is the dollar rate per square foot used in the valuation model that is derived from market analysis and selected based on the Use Code of the building. Our sample home is a "Use Code 012 - Detached", corresponding to a Residential-Detached–Single Family residence. The Base Rate is automatically selected by the CAMA system and the appropriate base rate for the sample home is \$ 149.27. Now the cost model looks like this:

```
Building RCN = [(\$157.85 + \Sigma ABRV_n)] * 3,498 * Size Adjustment

Base Rate Effective Area

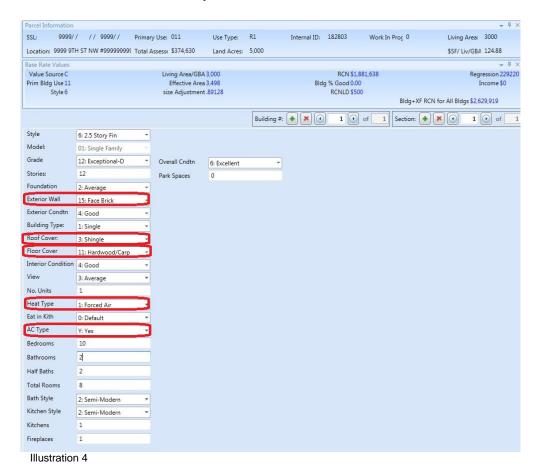
+ \Sigma AFRV_n] * (MV_0 * MV_2 * ... * MV_n)
```

3. The Base Rate of the home is just the start of the valuation process and it will be further modified as more specific features about the home are taken into consideration. Let's look at the first of two types of modifications that will affect the Base Rate, the Additive Base Rate Variables (ABRV).

```
Building RCN = [(Base Rate + \sum ABRV_n) * Effective Area * Size Adjustment + \sum AFRV_n] * (MV<sub>0</sub> * MV<sub>2</sub> * ... * MV<sub>n</sub>)
```

Additive Base Rate Variables represent a variety of features found in residential improvements. For example, the value for air conditioning and floor covering are such features. The typical characteristic of these ABRVs is that the features are usually an integral part, and therefore an integral cost, of the whole house. As such, the value of the particular ABRV is added to the Base Rate. Each ABRV incrementally increases the Base Rate by its own square foot rate. So therefore, the $\sum ABRV_n$ literally means the sum of all the rates for individual features are added to the Base Rate.

Highlighted in Illustration 4 are all the fields in the Construction Detail CAMA screen that can modify the selected Base Rate as ABRVs.



The Cost.dat sheet of our sample home lists each ABRV under the heading Base Rate Adjustments as follows:

The sum, Σ , is \$11.10 (1.80+3.95+4.67+0.68). This will be added to the Base Rate of \$157.85 to give a modified Base Rate of \$168.95.

Our model now looks like this:

```
Building RCN = [ ( $157.85 + $11.10) * 3,498 * Size Adjustment

Base Rate \sum ABRV_n Effective Area

+ \sum AFRV_n] * (MV<sub>0</sub> * MV<sub>2</sub> * ... * MV<sub>n</sub>)
```

4. Next, let us turn our attention to the second type of modification to the Base Rate - the Size Adjustment.

```
Building RCN = [(Base Rate + \sum ABRV<sub>n</sub>) * Effective Area * Size Adjustment + \sum AFRV<sub>n</sub>] * (MV<sub>0</sub> * MV<sub>2</sub> * ... * MV<sub>n</sub>)
```

The Size Adjustment modifies the Base Rate to account for the size difference between the "standard size" for the "typical" house in the model and the actual size of the sample house. The "standard" size of 1,800 SF for the "typical" house, consisting of a 2-story frame residence, is used as the basis for establishing the initial Base Rates used in CAMA. The adjustment in the Base Rate allows the proper square foot rate to be applied to a house based on its size. It is reasonable to expect that as a house becomes larger than typical, the rate per square foot would decrease and conversely, if the house were smaller than typical, the rate would be higher. This Size Adjustment variable is the component in the model that adjusts for this situation. Our sample home's Size Adjustment is 0.89128 as listed on the Cost.dat sheet. Now our Base Rate is calculated to be \$150.58 ((157.85+11.10) * 0.89128).

Because the adjustment is less than 1.00, it would be proper to conclude that our sample home is larger than the typical 2-story home in the District of Columbia. Had the sample home been smaller than 1,800 SF, the Size Adjustment would have been greater than 1.00. The use of size adjustments eliminates the need for the traditional cost tables based on size.

The cost model continues to grow, and now looks like this:

```
Building RCN = [ ($157.85 + $11.10) * 3,498 * 0.89128

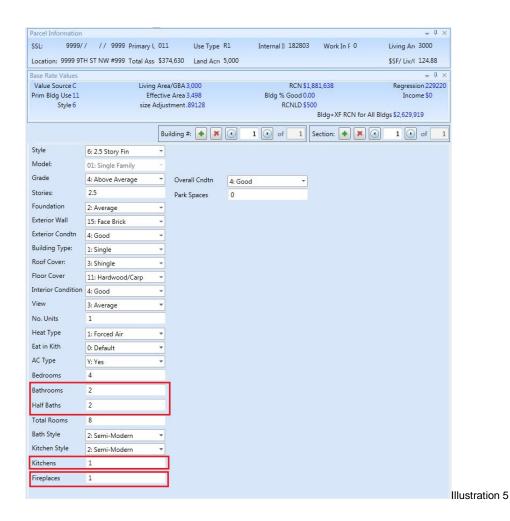
Base Rate \sum ABRV_n Effective Area Size Adjustment

+ \sum AFRV_n] * (MV<sub>0</sub> * MV<sub>2</sub> * ... * MV<sub>n</sub>)
```

5. We are finished establishing the Base Rate for our sample home and now turn to the Additive Flat Rate Variables (AFRV). This portion of the cost model is relatively straightforward. The individual Additive Flat Rate Variables are summed and the added to the product of the previous calculations.

```
Building RCN = [(Base Rate + \sum ABRV<sub>n</sub>) * Effective Area * Size Adjustment + \sum AFRV<sub>n</sub>] * (MV<sub>0</sub> * MV<sub>2</sub> * ... * MV<sub>n</sub>)
```

Here is where we make allowances for individual extra features contained in the sample house. Illustration 5 shows some of those features that constitute Additive Flat Rate Variables in the cost model:



Unlike the Additive Base Rate Variables (ABRV) described earlier, most of these features are not an integral portion of the whole house, but stand alone, so to speak. Examples include such items as fireplaces, extra bathrooms, and extra kitchens. Again, as with other variables in the cost model, the values of these features are derived from market analysis.

Our sample home has several Additive Flat Rate Variables (AFRVs), including additional bathrooms and a fireplace. The cost for one full bath and one kitchen is always included in the original base rate. Any bathrooms or kitchens over and above the first are accounted for as AFRVs.

The value of an additive flat rate variable is calculated by multiplying the number of "units" by the dollar rate per unit. For example, illustration 5 shows our sample home also has two half baths. The AFRV for the half baths is \$16,250 (2 "units" X \$8,125 per unit) as shown in a portion of the Cost.dat file below.

Also included in the AFRVs are the partitioned finished basement and the small open porch on the front of the house. Recall that in illustration 3, neither of these

areas was included in the calculation of the effective area of the house, therefore, their valuations are included here, as AFRVs.

The partitioned finished basement is calculated to be \$22,000. In this case, "units", the gross square footage of 400 SF (shown in the sketch area of the record), are multiplied by the rate of \$55 per SF. The open porch is calculated in a similar manner.

The sum, Σ , is \$60,070 (16,000+22,000+7,100+18,000+801) that will be added to the product of the previous portions of the cost formula.

The cost model is almost finished for our sample home, and now looks like this:

```
Building RCN = [ ( $157.85 + $11.10 ) * 3,498 * 0.89128
Base Rate \sum ABRV_n Effective Area Size Adjustment + $60,070 ] * (MV<sub>0</sub> * MV<sub>2</sub> * ... * MV<sub>n</sub>)
\sum AFRV_n
```

6. The last portion of the cost model used to calculate the RCN are the multiplicative variables (MV).

```
Building RCN = [(Base Rate + \sum ABRV<sub>n</sub>) * Effective Area * Size Adjustment + \sum AFRV<sub>n</sub>] * (\frac{MV_0 * MV_2 * ... * MV_n}{MV_0})
```

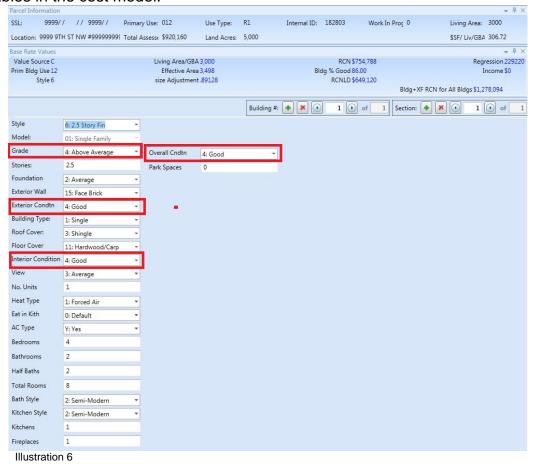
This portion of the formula can have the largest influence on the cost model. Each multiplicative variable modifies *all* of the cost data that has preceded it. These variables modify the Base Rate, the sum of all the increases to the Base Rate (Σ ABRV_n), the Size Adjustment, and the sum of all the Flat Rate Variables (Σ AFRV_n). This is where such important characteristics as the building grade, building condition, remodeling, and location factors have their impact.

The sample home is graded "Above Average - 4", and consequently has a 1.091 multiplicative factor. This one variable, grade, is going to increase the RCN value of the sample home by 10%. Grade can have a sizable impact on the final value of the building. For example, a "Superior - 8" increases the final rate by 48% over that of an "Average Quality - 3" house.

The condition of the building is also accounted for by the multiplicative variables. The interior, exterior and overall conditions of our sample home are each "Good" and the corresponding multiplicative variable for each is 4.8%. The level of condition may be different for each of the three variables and therefore the coefficients may be different. Please refer to the 2007 CAMA Residential Construction Valuation Guideline --RPAD for these and all other coefficients used in the valuation model.

Just as construction grade has a significant impact on the final value of a house, so does condition. For example, a house in overall "Poor" condition throughout will have its value <u>reduced</u> by 20.6%, whereas a house in excellent condition throughout will have its value increased by 10.5%. That's a range of over 31%.

Illustration "6" shows a portion of the features that constitute the multiplicative variables in the cost model:



Another important multiplicative variable, Remodel Type, takes into account whether or not the house has been remodeled and to what extent. In addition, the age of the remodel factors into the amount of adjustment applied by this multiplicative variable.

Our sample home was remodeled in 2001. The portion of the CAMA record that captures this information is shown in Illustration 7 below.

arcel Information	1							* û
SL: 9999//	// 9999 Primary	L 011 Use Typ	e R1	Interr	nal II 182803 Work Ir	1 F O	Livin	g Art 3000
ocation: 9999 9TH S	F NW #999 Total As	s \$374,630 Land Ad	rt 5,000				\$SF/	Liv/(124.88
ase Rate Values								- 1
Value Source C		g Area/GBA 3,000			RCN \$1,881,638		100000	gression 22922
rim Bldg Use 11		fective Area 3,498		Bld		Income \$0		
Style 6	size	Adjustment .89128			RCNLD \$500 Blda+XF	RCN for A	dl Bldgs \$2,	629.919
			Building	#: 🕡		Section:		
Section Level Deprec	iation							
Year Built	1937			Section S	Summary			
Effective Year Built	1950	Ovr EYB		Group Base Rati	R11 = 133.84	Effec RCN	tive Area 34	498 658.500
Functional Obsol				Eff Base		7070	% Good 8	and the second second
Economic Obsol				Net Othe		RCN	LD \$1	500
Condition		-		Marie Marie Control	ea/GBA 3000	6	Living	Eff Area
Percent Complete				100000	Description			
Depreciation Code		-		BAS	Main Building Area	1200	1200	1200
Remodel Rating	4: Remodel	-		FBP	Basement, Finished, Pa	rtn 400	0	0
Year Remodeled	2001	Override Initial	S	FGR	Garage, Attached	440	0	198
Override Value	500	203: WANDA 🕶						
	Value	Туре	Reason (Code	Date	ID		Comment
% Good Rem	ove	T		-	Select a date 1	5		Y
Misc. Improve Rem	ove	T			Select a date	5		7
Cost to Cure Rem	ove	(*		-	Select a date	5		Ŧ
Override Appraised		Override Assessed			override_initial			

Illustration 7

Obviously, a "Gut Rehab" would increase the value of property more than "Cosmetic" changes, and the coefficients listed in the above illustration demonstrate this. Our sample home was remodeled in 2001, indicating that the MV should be five percent. Five percent would be the correct amount if the remodel occurred in 2005, but it actually occurred in 2001, four years earlier. The CAMA model takes into consideration how long ago a remodel occurred and reduces its impact, as it becomes older. The rate of reduction of the MV is five percent per year. After twenty years, a remodel has no affect on value. In this example, our sample home's remodel occurred four years ago and thus the MV is reduced by twenty percent to 4.0% (5%*.80).

The last multiplicative variable, "Sub-Neighborhood Adj A", is the local neighborhood multiplier established within the particular neighborhood where the sample home is located. This variable is going to lower the RCN value of the sample home by 6.3%. The "Sub-Neighborhood Adj" reflects the market-derived fact that location is a very significant factor in the value of real estate. Two otherwise identical homes can have a substantial difference in value based on their locations.

The variables for our sample home are summarized in the Cost.dat file as follows:

REMODEL FACTOR 4 = 1.03500 x RCN SUB-NEIGHBORHOOD ADJ A = .878 x RCN

Each MV is multiplied together to determine the combined, or overall, MV. The sample home's MV is 1.2338132 (1.091*1.091*1.090*1.091*1.035*.878).

7. Finally, the Building RCN model is complete and contains the specific data of the sample home used in this demonstration. The market-derived cost model for the sample home is as follow:

```
Building RCN = [(Base Rate + \sum ABRV<sub>n</sub>) * Effective Area * Size $754,788 = [($157.85 + $11.10 ) * 3,498 * .89128 Adjustment + \sum AFRV<sub>n</sub>] * (MV<sub>0</sub> * MV<sub>2</sub> * ... * MV<sub>n</sub>) + $60,070 ] * (1.2862809 )
```

The Cost.dat file shows a summary of the same information.

Cost Calculation for pid, bid = 182803,173587

Account Number = 9999 9999

Use Code = 012

Cost Rate Group = R12

Model ID: R16

Section #1

Base Rate: 157.85

Size Adjustment: 0.89128

Effective Area: 3498

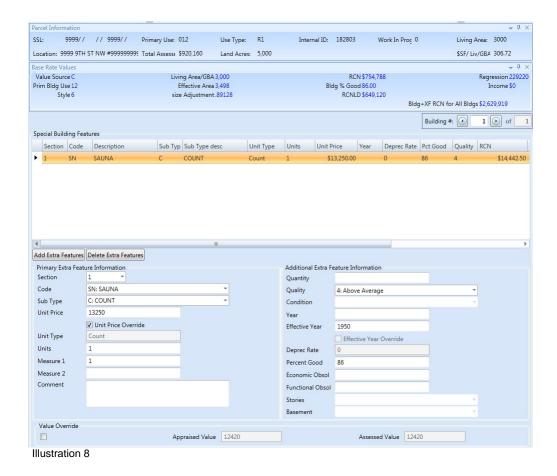
Adjusted Base Rate = (157.85 + 11.1) * 0.89128

Adjusted Base Rate: 150.58

RCN = ((150.58 * 3498) + 60070) * 1.2862802915416647

RCN: 754788

The replacement cost new for our sample home is \$754,188. There is still one thing left to address before we turn our attention to depreciation. Our sample home has a built-in sauna in the basement. This item was not costed as a component of the sample home, but rather as a Special Building Feature, with its own unit price of \$13,250. Also, note that the depreciation applied to the Special Building Features is identical to the amount applied to the main building. See illustration 6 below.



We now know the total replacement cost new (RCN) of our sample home, including the sauna, is \$ 768,038 (\$754,788 + \$13,250).

If the sample home were brand new, we'd be finished, but it was actually built in 1937.

Next, we need to address accrued depreciation . . .

Depreciation

Depreciation is defined as a loss in the upper limits of value from all sources. Typically, three types of depreciation can affect real estate - physical deterioration, functional obsolescence and economic obsolescence. This next portion of the demonstration will illustrate how Vision[©] calculates the amount of depreciation accrued to our sample home.

Several terms come into use when discussing depreciation in CAMA. They are defined as follows:

- Actual Age: The mathematical difference between the Base Year and the actual year the improvement was built to completion.
- Actual Year Built (AYB): The earliest time the main portion of the building was built. It is not affected by subsequent construction.
- Base Year: The year, usually the current year, that the depreciation table is calibrated, such that the age of a building built during the base year would be 0 years old.
- <u>Depreciation Table</u>: A market-driven table that lists the amount of depreciation corresponding to an Effective Year Built and the Base Year predicated upon a specific economic life.
- Effective Age: The mathematical difference, in years, between the Base Year and the Effective Year Built.
- Effective Year Built (EYB): The calculated or apparent year, that
 an improvement was built that is most often more recent than
 AYB. The EYB is determined by the condition and quality of the
 improvement. Subsequent renovation, additions, upgrades and
 the like, extend an improvements remaining economic life and
 therefore cause the EYB to be closer to the Base Year than the AYB.
- <u>Percent Good</u>: The mathematical difference between 100 percent and the percent of depreciation. (100% - depreciation %) = percent good

The RCN model used above indicated that our sample home has an RNC of \$768,038. As stated earlier, the home was built in 1937 so there should be some depreciation to deduct from the RCN. We'll uses a five-step process to depreciate improvements:

- 1. Calculate the Actual Age of the improvement
- 2. Determine the Effective Age of the improvement
- 3. Determine the improvement's Effective Year Built
- 4. Look-up Percent Good corresponding to EYB on depreciation table
- 5. Apply selected depreciation to RCN to determine RCNLD

- 1. Our first step is to calculate the Actual Age of our sample home. As you are aware, a valuation is always qualified as of a specific date. For ad valorem purposes in the District of Columbia, the valuation date is January 1 immediately preceding the tax year. In our example, the tax year is 2007; therefore, the valuation date is January 1, 2006. This date is also significant in terms of the depreciation accrued to improvements. In the past, the nature of triennial assessments required that base years within a Tri-Group remain unchanged for a period of three years. Now, however, with the return to annual assessments, the base year coincides with the valuation date. The Base Year is used to determine the Actual Age of the sample home. In this case, the sample home's Actual Age is 69 years (2006-1937).
- 2. The next step is to determine the sample home's Effective Age. Effective Age may or may not represent actual or chronological age. The premise is simple but the application can be confusing. If a home is built and never maintained (painting, re-roof, etc.) or remodeled, the home would quickly depreciate from physical deterioration. The CAMA system would depreciate the home at the fastest rate possible based on the selected Depreciation Table. For example, CAMA uses a 75-year Economic Life Depreciation Table for residential property. If the home were left to rot, the Effective Age would most likely be the same as the Actual Age.

Let's say the owners of our sample home have completely neglected their property from the time it was built in 1937 to the present. Their home would have an effective age of 78 years as indicated on the Depreciation Table below:

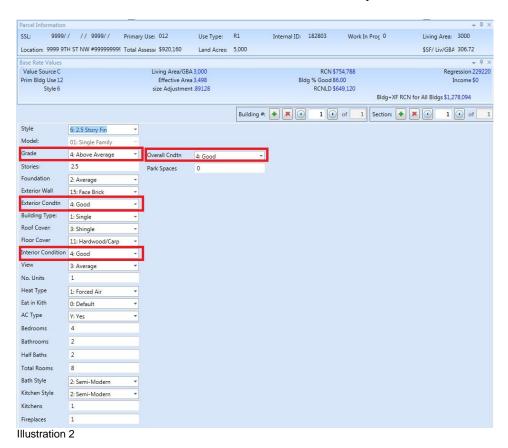
	Base	ion Tal _{Year}						
	201	15						
Age of Building	% Depr.	% Good	Effective Year Built					
0	0	100	2015		54	13	87	1961
1	1	99	2014		55	13	87	1960
2	2	98	2013	1	56	13	87	1959
3	2	98	2012		57	13	87	1958
4	3	97	2011	1	58	13	87	1957
5	3	97	2010	1	59	13	87	1956
6	4	96	2009	- 1	60	14	86	1955
7	4	96	2008	- 1	61	14	86	1954
8	4	96	2007		62	14	86	1953
9	4	96	2006		63	14	86	1952
10	5	95	2005		64	14	86	1951
11	5	95	2004	- 3	65	14	86	1950
12	5	95	2003		70	15	85	1945
13	5	95	2002		75	16	84	1940
14	6	94	2001		78	16	84	1937

The Actual Year Built (1937) and the Effective Year Built (1937) would be the same and consequently the Effective Age is 70 years. Moving across the table, we see that a home with an EYB of 1937 has 15 percent depreciation and therefore is 85 Percent Good (100%-15%). If the RCN of our sample home is \$754,788, the depreciated value, RCNLD, is only \$641,570 (754,788* 0.85).

Note: The depreciation table moves in 5-year periods towards its end; this explains the apparent inconsistencies in 70 years v. 69 years. The Cost.dat file represents the actual numbers used in calculations.

The situation described above rarely, if ever, occurs in the market. People do maintain and renovate their homes and in doing so, extend the home's useful or remaining economic life. As homeowners repair roofs, paint siding, replace windows and furnaces, they *prolong* the life of the home and consequently *decrease* its Effective Age.

Along with the actual age of the sample home, the illustration below shows which variables within CAMA affect the calculation of effective year built.



All of the features or variables dealing with depreciation, highlighted in Illustration 2 are multiplicative variables. As such, they are multiplied one by the other and then the Actual Age is multiplied by the product of the MVs. Below is the portion of the Cost.dat file that summaries these MV for our sample home.

The product of each of these MV adjustments is calculated to be 0.81225 (0.95 * 0.95 * 0.9). This product is then multiplied by the Actual Age to calculate the Effective Age. Recall our sample home's Actual Age is 78 years. The Effective Age is calculated to be 61 years (75 max * 0.81225). Instead of CAMA using 78 chronological years to calculated depreciation, it will use 61 years. Below is a portion of the Cost.dat file that shows these calculations.

Effective Age = 75 * .81225 Effective Age: 61

Percent Good = 86 RCNLD: 649120

- 3. We're almost finished. Knowing the Effective Age makes the calculation of the Effective Year Built for our sample home very simple. The Effective Year Built is 1950 (2006 56).
- **4.** Having established the Effective Year Built, we look up 1950 on the *75-Year Economic Life Depreciation Table* and find that the Percent Good is 87% for that year. See Illustration 3 below.

De	preciat	ion Tal	ole				
	Base	Year					
	201	15					
Effective Age of Building	% Depr.	% Good	Effective Year Built				
0	0	100	2015	46	11	89	196
1	1	99	2014	47	12	88	196
2	2	98	2013	48	12	88	196
3	2	98	2012	49	12	88	196
4	3	97	2011	50	12	88	196
5	3	97	2010	51	12	88	196
6	4	96	2009	52	12	88	196
7	4	96	2008	53	12	88	196
8	4	96	2007	54	13	87	196
9	4	96	2006	55	13	87	196
10	5	95	2005	56	13	87	198
11	5	95	2004	57	13	87	198
12	5	95	2003	58	13	87	198
13	5	95	2002	59	13	87	19
14	6	94	2001	60	1/1	86	-
15	6	94	2000	61	14	86	19
16	6	94	1999	02	14	- 00	15.
17	6	94	1998	63	14	86	198
18	6	94	1997				

5. The last step in the process is to simply multiple the RCN by 0.87 and we have RCN LD. The depreciated, market-derived cost approach value of the sample home used in this demonstration is \$ 641,570.

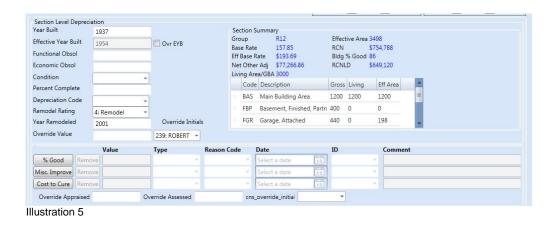
Some closing comments regarding depreciation are in order. Recall from the outset that we defined depreciation as a loss in value resulting from physical deterioration, functional and/or economic obsolescence. The demonstration above dealt only with depreciation attributed to the physical deterioration of the sample home. This, by far, is the most common type of depreciation that exists in residential property. However, occasions may require additional depreciation because of excessive physical deterioration, functional and/or economic obsolescence. One must use caution when invoking these types of depreciation. The market must support any decision regarding the extent of these adjustments. Below illustrates our sample home with an additional ten percent economic obsolescence. A gas station was built across the street from the home, and a recent sale of the next-door neighbor's house showed the impact of this situation.

Prim Bldg Use 12 Style 6				size Adjustn	Area 3,498 nent .89128		Bldg % Good 86.00 RCNLD \$649,120						Incon	16 30	
											E	Bldg+XF	F RCN for All Bldg	s \$1,278,09) 4
								Bu	ilding #:	•	1 • of	1	Section:	1	of
Section Level De	preciati	on										- ''			
Year Built	1	.937					n Summa		22	0 0	2022				
Effective Year Bui	ilt 1	.954		Our EVR		Group Base R		R12 157.85	RCN RCN	tive Area	3498 \$754,788				
Functional Obsol	1					Eff Bas		\$193.69		% Good					
Economic Obsol								\$77,266.86	RCNI	.D	\$649,120				
Condition			-				Area/GBA					-			
Percent Complete	e 1	.00				100.00	de Desc		Contraction (Contraction)	Living	Eff Area				
Depreciation Cod	de		-			BA	S Main	Building Area	1200	1200	1200	=			
Remodel Rating	4	Remodel	-			FB	P Baser	ment, Finished, Par	tn 400	0	0				
Year Remodeled	2	001		Override Initia	s	FG	R Gara	ge, Attached	440	0	198	-			
Override Value		20030		239: ROBERT +											
		Value		Туре	Reason C	ode	Date		ID		Comme	nt			
% Good	Remove			-		-	Select	a date 15			7				
Misc. Improve	Remove			¥		-	Select	a date 15			7				
Cost to Cure	Remove			¥		+	Select	a date 15			+				
Override Appra	aised		Ov	erride Assessed		CI	ns overri	de initial	*						

Illustration 4

The actual mechanics of adjusting depreciation for functional or economic obsolescence within CAMA are briefly discussed below. If the situation occurs, seek guidance from your supervisor and/or CAMA manager.

Illustration 5 shows the portion of the CAMA screen used to allow for additional depreciation. It is not necessary to make adjustments in the "CDU" field or to override the EYB field. The "Status" and "Percent Complete" fields are the only two fields that are utilized to account for additional depreciation.



The "Condition" field's pick-list is similar to Illustration 6 shows items that have a direct affect on depreciation and the nature of the affect. Notice that a reduced number of Condition Codes are functional within CAMA and their affect on depreciation is either to *replace* the existing amount in the "% Good" field or *decrease* the "% Good." The corresponding numeric amount that will affect the "% Good" is entered in the field called "Percent Complete." Please note that the field name "Percent Complete" is somewhat erroneous because the word "Complete" has no meaning in this context. This is the field that you will enter the

amount to either decrease the existing "% Good" or replace the existing "% Good." based on the Status Code selected.

	Status Code	s
Code	Description	Affect on % Good
0	Default	NONE
Α	Abandoned/Boarded	NONE
В	Burned Out	NONE
С	Commercial New Const	REPLACE
E	Economic Dep	DECREASE
F	Functional Dep	DECREASE
li .	Gut Rehab	NUNE
Н	Data Change	NONE
L	Limited Equity	NONE
М	Demolition	NONE
N	N/A	NONE
NO	Normal	NONE
OV	Overall Depreciation	REPLACE
Р	Physical Depr	DECREASE
PΆ	Partial Abandon	NUNE
R	Renovation	NONE
T	Order of Taking	NONE
V	Vacant	NONE

Illustration 6

Recall our example of the gas station. The Percent Complete field has "10" as it's value. Based on the "E" Status Code, we know that the original depreciation will increase by ten percent resulting in a decrease in Percent Good to 77% (87-10).

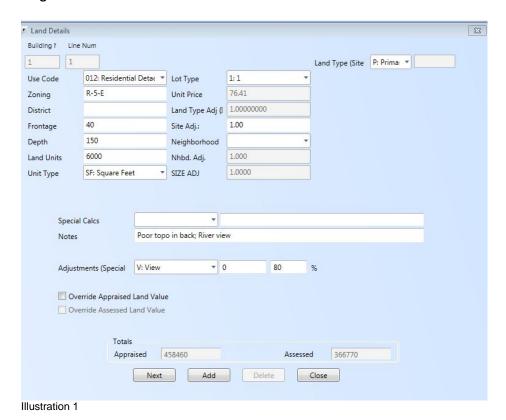
Another comment regarding depreciation concerns the impact that the quality of design, material and workmanship have on depreciation. The grade assigned to a home obviously makes a considerable difference in the final RCN, but it also plays a substantial part in determining the amount of depreciation accrued to the home. It is easy to understand that if all other things were equal, a home built with better material and workmanship would age better than one with poorer materials and workmanship. The higher quality the home the more slowly it will deteriorate. Conversely, a shoddily built home will age more quickly than the average home.

Lot Valuation

Now that we've calculated RCN in the first section and the amount of depreciation in the second section, we know the value of our improvements from the formula RCN-LD to be \$639,030.

Next let's turn our attention to the final portion of the process – land or lot valuation. There are several aspects or characteristics to land that affect its value. Needless to say the old adage "Location, Location, Location!" is certainly true, but beyond that there are considerations for such things as lot size, shape, frontage, topography, view, restrictions and the like that influence the final value of land.

Let's once again return to our sample home and examine the details on the PRC to get our first look at the lot valuation.



Notice that the detail tells us the lot size, the price per unit, and any adjustments that affect the lot. The model used to calculate the value of lots in CAMA is as follows:

Lot Value = [Lot Size *((Base Rate * Size Adjustment) + \sum Dollar Adjustments) * \sum Percent Adjustments]

The formula represents the following steps:

- 1. Determine the base rate for the particular neighborhood where the lot is located and multiply that rate by the 'size adjustment factor';
- 2. Next, add the adjusted rate in step one to the sum of all dollar amount adjustments;
- 3. Next, multiply the results by the lot size;
- 4. Lastly, multiply that result by the product of all percentage adjustments.

Most of this activity can be seen in the Land.Dat file in Appendix A of this document. You may wish to refer to it as we go through this exercise.

Let's expand the discussion and follow the steps of the process to explain the lot valuation of our sample home in more detail.

1. "Determine the base rate for the particular neighborhood where the lot is located and multiply that rate by the 'size adjustment factor'."

The residential base land rates are different for each (sub)neighborhood in the District. Each year, the current base rates are updated in CAMA and published in the *Assessor Reference Materials*. In addition to the base rates, the base lot sizes and size curves are included. Our property is located in Chevy Chase, and below shows the portion of the land rate table for that neighborhood:

NBHD	Base Lot Size	Base Rate	Base Lot Value	Size Curve
11 A	5,000 sf	\$89.00	\$445,000	LG 1

Illustration 2

The base rate for our property is \$89.00 per sf.

The size adjustment factors are also incorporated in CAMA. These factors make allowances for lots whose sizes differ from the standard "base" size for the lots in that particular (sub)neighborhood. Recall that as the size or area of a building or lot increases, the dollar rate per unit typically goes down from the base rate, and conversely, the dollar rate typically increases over the base rate when the area or size is smaller than the standard base rate.

Recall that our lot is 6,000 sf in size. The table states that the Base Lot Size is 5,000, so a size adjustment will be necessary. Intuitively, one would expect that the size adjustment would be less than 100% because the actual lot is larger than the base size lot. CAMA contains the algorithms to calculate the proper size adjustment. Essentially, it determines which "land size curve" is to be used as the basis for determining the adjustment, then it mathematically interpolates and extrapolates the factor from the particular size table associated with the curve based on the amount of difference between the standard size and the actual size.

In the case of our sample home, the size curve is LG 1. This curve is one of the four curves existing in CAMA and it is effect on rates is the lowest of the curves.

Based on the difference between the base size and the actual size of the lot, CAMA has selected a factor of 0.8585 as the adjustment. If the lot were smaller, say 4,000, sf the selected factor would have been 1.198.

So, to finish step 1, we multiply the (sub)neighborhood base land rate by the calculated size adjustment factor to arrive at a size adjusted rate of \$ 76.41 (\$89.00 * 0.8585).

2. "Next, add the adjusted rate in step one to the sum of all dollar amount adjustments."

If there are any dollar-amount adjustments to the rate, this is the time to make the them. For example, you may choose to lower the rate by \$10 per sf on a particular lot in a neighborhood because it is on a busy street corner. In our example, the rate is increased by \$15 per sf because the property has an excellent view of the river not enjoyed by the other lots in the neighborhood. This adjustment increases the rate to \$91.41 (\$76.41 + \$15.00).

Use caution when making any adjustments to the calculated rates. If adjustments are warranted, seek guidance from your supervisor or CAMA manager.

3. "Next, multiply the resulting rate by the lot size."

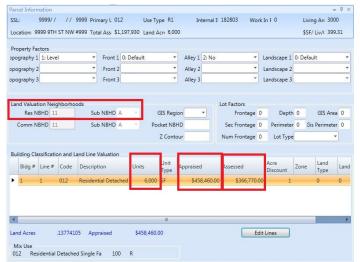
This is an easy step. The land value at this point is \$458,460 (\$76.41 * 6,000).

4. "Lastly, multiply that result by the product of all percentage adjustments."

As before, here's where we can reflect adjustment to the lot for such things as topography, view, shape irregularity, and the like. There may be an easement across the back of the lot that affects value. Again be certain that the adjustment is peculiar to just the subject or a few lots in the (sub)neighborhood, otherwise the condition would have been already accounted for in the calculations done by the multiple regression analysis process that generated the original base rates, size curves and standard lot sizes.

Our sample lot had a steep drop-off across the back that the assessor accounted for by adjusting the final rate by 80 percent. This is the last calculation to determine the subject property's lot value. The final value of our lot is \$ 366,768 (458,460 * 0.80).

The illustrations below summarize much of the information discussed in this land valuation exercise. Illustration 3 shows a portion of the data entry screen in Vision[©] CAMA and the second, illustration 4, is the Land.dat file with selected information highlighted.



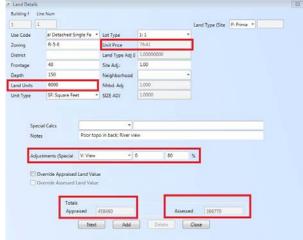
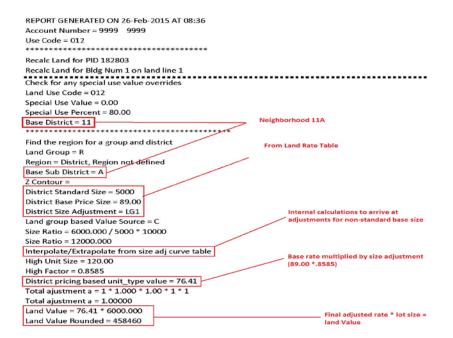


Illustration 3



Some Final Thoughts

We have introduced you to some of the most elementary aspects of property valuation using the District's Vision® CAMA system. We have developed the RCN of a fictitious home, reduced its value by the accrued depreciation and finally added the land value component to complete the appraisal. This guideline is merely a small window, a first step, in the complex field of CAMA mass appraisal. A CAMA system robust enough to appraise 180,000 different properties will necessarily be comprehensive and complex. As you explore and utilize the program make certain that you fully understand the ramifications and results of your actions. Your supervisor and/or CAMA manager will always be available to assist you.

Appendix A

- 1. Property Record Card, SSL 9999 9999
- 2. Cost.dat print-out, SSL 9999 9999
- 3. Land.dat print-out, SSL 9999 9999
- 4. 2007 CAMA Construction Valuation Guideline Residential

Property Location 9999 9TH ST NW #999999999 Account # 9999 9999 Card # 1 of 1 Use Code 012 Internal ID 182803 WASHINGTON. DC Bldg # 1 of 1 Sec # 1 of 1 Print Date 2/27/2015 8:31:11 AM **CURRENT OWNER** ACCOUNT INFORMATION **CURRENT ASSESSMENT** Description Code | Assessed Val JANEY TAXREP Use Type Use Code Lot SF Status Code **RES LAND** 012 366,770 RES 012 R1 6.000 Α RESIDNTL 012 661,540 9999 9TH ST RESIDNTL 012 169,620 VISIT / CHANGE HISTORY Date ΙD Type | Inf. Source | Code | Description С 0 Revaluation 11-13-2014 203 Value Src: C Total: 1,197,930 District of Columbia Washington DC 12345 06-18-2014 203 0 В Sale Verification & Permit Value Date Value Status С 03-04-2013 203 0 В Sale Verification & Permit **Real Property** Reg 203 0 0 Revaluation 09-14-2012 **Assessment Division** 01-01-2012 379 Ν Revaluation С Cost 02-27-2015 09-12-2006 203 В Sale Verification & Permit **OWNERSHIP HISTORY** SALE DATE v/i SALE PRICE PREVIOUS ASSESSMENTS (HISTORY) INSTRUMENT # q/u Year Use Val Source Land Value Building Value Assess Value Type JANEY TAXREP 1111/2222 Q 575.000 01 12-31-2011 JOSEPH TAXPAYER 02-29-2000 Q 2016 012 С 366,770 831,160 1,197,930 123456 654,321 01 R1 2015 0 2,296,630 2,378,750 011 82,120 2014 С 67.480 2,340,370 011 R1 2,407,850 2013 024 С 287,330 1,632,500 1,919,830 R3 2012 012 R1 278,210 693,980 972,190 **PROPERTY FACTORS APPEALS** TOPOGRAPHY MLT FRONT ALLEY ACCESS LANDSCAPE Appeal # Decision Amount Revised AV 2 No 0 Default 1 Level 0 Default COMMENTS THIS IS A NOTE ABOUT THIS HOUSE SUPPLEMENTAL DATA TAX TYPE Description Year Type Description Type 2007 TX **TAXABLE** Neighborhood **CHEVY CHASE** Part Part Mixed Use 0 **Vcnt Lnd Use** 12 **Model Type** 0 Restr Resale Abbutt Lot 0 **Zone Overlay VALUE SUMMARY PARCEL LOCATION SUMMARY** Regress (L&B) Cost (L&B) SSL ZONING **NBHD** SUB-NBHD WARD **GROUP** ARN 0 1.289.620 9999 9999 Α R-5-E 6 1 260 11 ID Factor/Value Type Reason Date **BUILDING PERMIT INFORMATION** Value Adiust. Permit ID Issue Date | Type Amount Description Insp Date Override 999999 01-01-2011 NW 500.000 12-31-2011 1234 05-21-2008 AD 50,000 Renovations to Basement 06-13-2008 Comment 121212 DATA ENTRY 000001 GR 20,000 Entry Date: _____ Entry ID: __ LAND LINE VALUATION SECTION Depth Units I. Factor Price Size Adi Site Rating Adjustments/Special Use Land Value Occ Description Zone Frontage Notes R-5-E 40 6000.0 SF Р 76.41 458,460 012 Residential Detached Single F 150 1.000000 0 1.0000 80.00 Poor topo in back; River vi

Total Land Value

458,460

Total Land Units

6,000 SF

Account # 9999 9999 Property Location 9999 9TH ST NW #999999999 Internal ID 182803

WASHINGTON, DC

Bldg # 1 of 1

Card # 1 of 1 Sec # 1 of 1

Use Code 012 Print Date 2/27/2015 8:31:11 AM

SKETCH

FBP (400 sf)

FHS FUS BAS 30 UBM	40 2 1/2 S	20 30	22 FGR 22	20
	40 FOP 10			

		111	T) d

Internal ID 18	32803				VV	ASHING	ION, DC	,	
			ON DETAIL		BUILDING SU				
Element	Cd	Chng	Description	Code	Description	Gross		J	
Prim Bldg Use	012		Residential Detached	BAS	Main Building Ar				
Model	01		Single Family	FBP	Basement, Finis	400		0	
Grade Style	6		Above Average 2.5 Story Fin	FGR	Garage, Attache	440	198	-	
Stories:	2.5		2.5 Story Fill	FHS	Half Story, Finis	1,200			
Building Type:	1		Single	FOP	Porch, Open	60		·	
Roof Cover:	3		Shingle	FUS	Upper Story, Fin		1,200		
Foundation	2		Average	UBM	Basement, Unfin	1,200	300	이	
Exterior Wall	15		Face Brick						
Exterior Condt	4		Good		Total	5,700	3,498	3,000	
Heat Type	1		Forced Air		BUILE	DING CO	ST		
AC Type Floor Cover	Y 11		Yes Hardwood/Carp	Effect	ive Area			3,498	
Interior Conditi	4		Good	Buildii	ng RCN			754,788	
Total Rooms Fireplaces	8			Spec.	Feature RCN			14,443	
Bedrooms	4			Total	RCN			769,231	
Bathrooms Half Baths	2			% Go	od			86	
Bath Style Kitchens	2			Semi-Modern	Buildii	Building Cost			661,538
Kitchen Style	2		Semi-Modern		DEPR	RECIATION	ON		
Eat in Kith Overall Cndtn	0		Default Good			Current	Cł	nange	
View	3		Average	Prima	ry OCC	012			
Park Spaces No. Units	0								
						1937			
						2001			
				Effect	ive Year Built	1954			
				Status	_				
				% Coi	mplete				
				Туре	Override (Cost) on Code nent				

SPECIAL FEATURES/AMENITIES
Units SF Unit RCN Description Unit Price Quality Code SN SAUNA 13250.0 14,443 Count 4

Description	Units	Unit Type	Unit Price	Grade	Cndtn	RCN	% Gd	Ass. Val		
Detached Garage POOL HOUSE	200 1,500	SF SF	63.50 150.07	5	5 4	16,791 194,19	85 80	14,270 155,350		
	Detached Garage	Description Units Detached Garage 200	Description Units Unit Type Detached Garage 200 SF	Description Units Unit Type Unit Price Detached Garage 200 SF 63.50	Detached Garage 200 SF 63.50 5	Description Units Unit Type Unit Price Grade Cndtn Detached Garage 200 SF 63.50 5 5	Description Units Unit Type Unit Price Grade Cndtn RCN Detached Garage 200 SF 63.50 5 5 16,791	Description Units Unit Type Unit Price Grade Cndtn RCN % Gd Detached Garage 200 SF 63.50 5 5 16,791 85		

OUTPUT FROM NEW COST MODELING ENGINE REPORT GENERATED ON 27-Feb-2015 AT 08:28 **********Building #1 Calc Start********* Cost Calculation for pid, bid = 182803, 173587 Account Number = 9999 9999 Use Code = 012Cost Rate Group = R12 Model ID: = R16 Section #1 Section Use: Residential Detached Single Fa Base Rate: 157.85 Size Adjustment: 0.89128 Effective Area: 3498 Adjusted Base Rate = (157.85 + 11.100000) * 0.89128 Adjusted Base Rate: 150.58 RCN = ((150.58 * 3498 + 60070.000000000) * 1.286280291541664700000000000) + 0RCN: 754788 *************Base Rate Adjustments******* EXTERIOR WALL 15 = 3.950 + BaseRate ROOF COVER 3 = 0.680000 + BaseRate FLOOR COVER 11 = 4.670 + BaseRate AIR CONDITIONING Y = 1.800 + BaseRate FULL BATHS OVER 1 = 12500.000 + RCN HALF BATHS = 16250.000 + RCNFIREPLACES = 8000.000 + RCN PARTITIONED FINISHED BASEMENT = 22000.000 + RCN OPEN PORCH = 1320.000 + RCN GRADE $4 = 1.090 \times RCN$ INTERIOR CONDITION 4 = 1.091 x RCN EXTERIOR CONDITION 4 = 1.091 x RCN OVERALL CONDITION 4 = 1.091 x RCN REMODEL FACTOR 4 = 1.035000000000 x RCN SUB-NEIGHBORHOOD ADJ A = 0.878000 x RCN EFF AGE GRADE $4 = 0.950 \times Age$ BATH STYLE $2 = 0.950 \times Age$

KITCHEN STYLE $2 = 0.900 \times Age$

Actual Year Built: 1937 Effective Age = 61

Percent Good = 86 RCNLD: 649120

REPORT GENERATED ON 27-Feb-2015 AT 08:29 Account Number = 9999 9999 Use Code = 012 *********** Recalc Land for PID 182803 Recalc Land for Bldg Num 1 on land line 1 ********** Check for any special use value overrides Land Use Code = 012 Special Use Value = 0.00 Special Use Percent = 80.00 Base District = 11 *********** Find the region for a group and district Land Group = RRegion = District, Region not defined Base Sub District = A Z Contour = District Standard Size = 5000 District Base Price Size = 89.00 District Size Adjustment = LG1 Land group based Value Source = C Size Ratio = 6000.000 / 5000 * 10000 Size Ratio = 12000.000 Interpolate/Extrapolate from size adj curve table High Unit Size = 120.00 High Factor = 0.8585District pricing based unit_type value = 76.41

Total ajustment a = 1 * 1.000 * 1.00 * 1 * 1

Total ajustment a = 1.00000 Land Value = 76.41 * 6000.000 Land Value Rounded = 458460

2016 CAMA Residential Construction Valuation Guideline -- RPAD

USEC	ODE		Exter 0	ior Finish (Add to Bas Default	e Rate)		Enclosed Porch	\$41.25/sf \$46.75/sf
(0 -11	- D D-(-)		1	Plywood			closed Porch	\$55.00/sf
•	s Base Rate)		2	Hardboard Lap		Deck	iciosca i dicii	\$27.50/sf
No.	Description	Value	3	•		Patio		•
				Metal Siding		Pallo		\$ 8.25/sf
011	Row	\$133.84	4	Vinyl Siding		0	Marking Dane	A
012	Detached	\$157.85	5	Stucco		,	Multiplies Base,	Add & Flat)
013	Semi-Detached	\$133.66	6	Wood Siding		0	Default	
015	Mixed Use	\$133.84	7	Shingle		1	Low Quality	0.50
019	Miscellaneous	\$133.84	8	SPlaster		2	Fair Quality	0.75
023	Small Apt. Bldg.	\$105.55	9	Rustic Log		3	Average Quality	1.00
023	Conversion	\$136.19	10	Brick Veneer	\$3.95	4	Above Average	
024	Conversion	φ130.19	11	Stone Veneer	\$9.38	5	Good Quality	1.19
			12	Concrete Block	ψ5.00	6	Very Good Qual	
			13	Stucco Block		7	Excellent Quality	
CONS	TRUCTION DETA	JI .			ሰ ር ዕር			
			14	Common Brick	\$3.95	8	Superior Quality	
No.	Description	Value	15	Face Brick	\$3.95	9	Extraordinary –	
			16	Adobe		10	Extraordinary –	
Style	(Descriptive)		17	Stone	\$9.38	11	Extraordinary –	
1	1 Story		18	Concrete	\$3.95	12	Extraordinary –	D 2.85
2	1.5 Story Unfin		19	Aluminum			•	
3	1.5 Story Fin		20	Brick/Stone	\$6.67	Interior	Condition (Multir	olies Base, Add & Flat)
4	2 Story		21	Brick/Stucco	\$1.98	0	Typical	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
5	2.5 Story Unfin		22	Brick/Siding	\$1.98	1	Poor	.766
5 6	2.5 Story Fin		23			2		.766 .819
				Stone/Stucco	\$4.69		Fair	
7	3 Story		24	Stone/Siding	\$4.69	3	Average	1.000
8	3.5 Story Unfin					4	Good	1.091
9	3.5 Story Fin		Heat	Type (Add to Base Ra	te)	5	Very Good	1.179
10	4 Story		0	No Data		6	Excellent	1.239
11	4.5 Story Unfin		1	Forced Air				
12	4.5 Story Fin		2	Air-Oil	\$0.55	Exterio	r Condition (Multi	plies Base, Add & Flat
13	Bi-Level		3	Wall Furnace	-\$1.27	0	Default	p.100 2000, 7.00 a 1 lat
14	Split Level		4	Electric Rad	-\$0.29	1	Poor	.766
15	Split Foyer		5	Elec Base Brd	-\$0.20	2	Fair	.819
			6	Water Base Brd	\$1.42	3	Average	1.000
Founda	ation (Descriptive)		7	Warm Cool		4	Good	1.091
0	No Data		8	Ht Pump		5	Very Good	1.179
4	Pier		9	Evp Cool		6	Excellent	1.239
5	Wood		10	Air Exchng				
6	Concrete		11	Gravity Furnace		Overall	Condition (Multir	olies Base, Add & Flat)
Ü	001101010		12	Ind Unit		0	Default	siles Base, Ada a i lat,
View	(Descriptive)		13	Hot Water Rad		1	Poor	.766
	· · ·		13	Hot Water Rad				
0	Typical					2	Fair	.819
1	Poor			ype (Add to Base Rate	!)	3	Average	1.000
2	Fair		0	Default		4	Good	1.091
3	Average		N	No		5	Very Good	1.179
4	Good		Υ	Yes	\$1.80	6	Excellent	1.239
5	Very Good				*			
6	Excellent		Floor	Covering (Add to Bas	e Rate)	Remod	el Tyne (Multinlie	s Base, Add & Flat)
Ü	Execution		0	Default	\$2.50	0	Default	buse, Aud a rial,
Duildin	a Type (Descriptive	١	-					
	g Type (Descriptive)	1	Resilient	\$2.63	1	Unknown	
0	Default		2	Carpet	\$2.17	2	Gut Rehab	1.44
1	Single		3	Wood Floor	\$6.06	3	Major Renov	1.26
2	Multi		4	Ceramic Tile	\$8.53	4	Remodel	1.10
6	Row End	\$2.50	5	Terrazzo	\$8.30	5	Addition	
7	Row Inside		6	Hardwood	\$7.17	6	Cosmetic	1.02
8	Semi-Detached		7	Parquet	\$8.15	ŭ	0000	
•	Com Botachea		8	Vinyl Comp	\$1.64	The offe	act of this multiplior	diminishes at a rate of
Doof	(Add to Pass Pat	۵۱						
Roof	(Add to Base Rate	e)	9	Vinyl Sheet	\$2.86	5% per	year based on the	Remodel Year.
0	Typical		10	Lt Concrete	\$0.75			
1	Comp Shingle		11	Hardwood/Carp	\$4.67			
2	Built Up							
3	Shingle	\$0.68	Per U	Init Adjustment (Flat R	ate Add)			
4	Shake	\$0.79		ath (over 1)	\$12, 5 00			
5	Metal-Pre	\$0.50	Half E		\$ 8,125			
6	Metal Sms	\$0.50	Firepl		\$ 8,000			
7	Metal-Cpr	\$0.50						
			Kitche		\$11,500			
8	Composition Roll	-\$0.43		ned Basement (Basic)	\$20.00/sf			
^	Concrete Tile	\$1.88		ned Basement (Partition	'			
					A			
9 10	Clay Tile	\$2.93	Basei	ment Garage	\$45.00/sf			
10	Clay Tile Slate	\$2.93 \$2.86	Basei Carpo		\$45.00/sf \$33.00/sf			
10 11	•			ort				
10 11 12	Slate Concrete	\$2.86 \$1.88	Carpo Stoop	ort O	\$33.00/sf \$22.00/sf			
10 11 12 13	Slate Concrete Neoprene	\$2.86 \$1.88 \$0.00	Carpo Stoop Open	ort O Porch	\$33.00/sf \$22.00/sf \$22.00/sf			
10 11 12	Slate Concrete	\$2.86 \$1.88	Carpo Stoop Open	ort O	\$33.00/sf \$22.00/sf			

2016 CAMA Residential Construction Valuation Guideline -- RPAD

DEPR	ECIATION DETAIL	L
No.	Description	Value
Grade 0 1 2 3 4 5 6 7 8	(Adjust EYB) Default Low Quality Fair Quality Average Quality Above Average Good Quality Very Good Quality Excellent Quality Excellent Quality	20% 10% -05% -10% -15% -25%
9 10 11 12	Superior Quality Extraordinary – A Extraordinary – B Extraordinary – C Extraordinary – D	-35% -45% -50% -50%
Bath Sty	/le (Adjust EYB) Default	
1 2 3 4	No Remodeling Semi-Modern Modern Luxury	- 05% - 10% - 20%
	Style (Adjust EYB)	
0 1 2 3 4	Default No Remodeling Semi-Modern Modern Luxury	- 10% - 20% - 40%

Building RCN = [(Base Rate + \sum ABRV _n) * Effective Area * Size Adjustment + \sum AFRV _n] * (MV ₀ * MV ₂ * * MV _N)
Where:
RCN = Replacement Cost New
Base Rate = \$ rate based on use and style
ABRV = Additive Base Rate Variables
Effective Area = Adjusted SF area of
improvement
Size Adjustment = Adjustment factor for
deviation from base size
AFRV = Additive Flat Rate Variables
MV = Multiplicative Variables

De	eprecia	tion Tab	ole
		Year 015	
Effective Age of Building	% Depr.	% Good	Effective Year Built
0	0	100	2015
1	1	99	2014
2	2	98	2013
3	2	98	2012
4	3	97	2011
5	3	97	2010
6	4	96	2009
7	4	96	2008
8	4	96	2007
9	4	96	2006
10	5	95	2005
11	5	95	2004
12	5	95	2003
13	5	95	2002
14	6	94	2001
15	6	94	2000
16	6	94	1999
17	6	94	1998
18	6	94	1997
19	7	93	1996
20	7	93	1995
21	7	93	1994
22	7	93	1993
23	7	93	1992
24	8	92	1991
25	8	92	1990
26	8	92	1989
27	8	92	1988
28	8	92	1987
29	9	91	1986
30	9	91	1985
31	9	91	1984
32	9	91	1983
33	9	91	1982
34	9	91	1981
35	10	90	1980
36	10	90	1979
37	10	90	1978
38	10	90	1977
39	10	90	1976
40	10	90	1975
41	11	89	1974
42	11	89	1973
43	11	89	1972
44	11	89	1971
45	11	89	1970
	11	09	1910

46	11	89	1969
47	12	88	1968
48	12	88	1967
49	12	88	1966
50	12	88	1965
51	12	88	1964
52	12	88	1963
53	12	88	1962
54	13	87	1961
55	13	87	1960
56	13	87	1959
57	13	87	1958
58	13	87	1957
59	13	87	1956
60	14	86	1955
61	14	86	1954
62	14	86	1953
63	14	86	1952
64	14	86	1951
65	14	86	1950
70	15	85	1945
75	16	84	1940

Vision Commercial CAMA Valuation Process

he market-derived cost approach to the valuation of real estate follows the generic formula of **Market Value = ((RCN LD) + land value)**, where **RCN** is Replacement Cost New of the improvements and **LD** means Less Depreciation. When properly developed and calibrated, this approach is a reliable indicator of market value especially suited to mass-appraisal CAMA systems.

The following exercise will attempt to illustrate how the Vision[©] CAMA system utilized by the District of Columbia, calculates values using the above model. The first portion will illustrate the development of the Replacement Cost New of a small commercial building, and the last portion will show the steps involved in determining the amount of depreciation that has accrued to the building. Land valuation is not discussed in this exercise.

Replacement Cost New

The Vision© CAMA system arrives at a RCN value for commercial properties based on a market-calibrated hybrid cost model. The hybrid nature of the model simply means that the model employs both additive and multiplicative variables in its design and specification. The nature of the model will become clearer as we proceed through this exercise. Please also be aware that a model is dynamic in both its specifications and calibration. The specifications, those cost elements that comprise the model, may change from time to time based upon research and market conditions. The calibration of the model is primarily derived from information provided by the Marshall and Swift Valuation Service, a company that provides building cost data necessary for real estate cost valuations and is widely considered the authority on the cost approach to valuation. As you may discover, the dollar rates, or calibrations, contained here most likely are different from the current model in use. The model used in this exercise is as follows:

```
Building RCN = [Section<sub>1</sub> (Base Rate * Effective Area * Size Adjustment) * (MV_1 * MV_2 * ... * MV_n)] + [Section<sub>n</sub> (Base Rate * Effective Area * Size Adjustment) * (MV_1 * MV_2 * ... * MV_n)] + [\sum Special Building Features]
```

Where:

RCN = Replacement Cost New
Base Rate = \$ rate based on occupancy (use) code and construction class
Section_n = Each separate building or section of building
Effective Area = Adjusted SF area of improvement
Size Adjustment = Adjustment factor for deviation from base size
MV = Multiplicative Variables

Several items will be helpful while examining the features of the cost model and they are collected as Appendix "A" of this document. You will need to refer to them often during this exercise. They include the following:

- Sample building's Property Record Card (PRC)
- Cost.dat printout of the sample building
- Depreciation Schedule
- 2016 CAMA Construction Valuation Guideline Commercial

The commercial building designed for this exercise is typical of a small commercial property in the District. It consists of a one-story full service restaurant and an adjoining two-story building. The two-story section consists of a package goods store and a small apartment on the second floor. The building is of good quality and is constructed of brick veneer over concrete block. For this exercise, the building has been logically sectioned into two sections. Section 1 covers the restaurant and Section 2 covers the package goods/apartment portion.

Below shows the Construction Detail in the CAMA record of the building. The first illustration depicts Section 1 – the restaurant and the second represents Section 2 – the package goods store and apartment.

Base Rate Values			
Value Source C			Living Area/GBA 5,400
Prim Bldg Use 45			Effective Area 8,460
Style			size Adjustment 1.2386
Style	C: Brick/Concr	-	
Model:	94: Commercial	-	
Grade	40: Good	~	
Stories	2		
# Units	1.00		
Shape/Peri	2: Rectangular	-	
CDU	VG: Very Good	-	
1st Floor Occ	045		
Prim Bldg Use	045		
Exterior Finish	C: Concrete	-	
Wall Height	12.00		
Structure Class	C: Brick/Concr	-	

Illustration 1

ase Rate Values Value Source C			Living Area/GBA 5,400
Prim Bldg Use 45			Effective Area 8,460
Style			size Adjustment 1.2386
Style	C: Brick/Concr	-	
Model:	94: Commercial	-	
Grade	40: Good	-	
Stories	2		
# Units	1.00		
Shape/Peri	2: Rectangular	•	
CDU	VG: Very Good	•	
1st Floor Occ	047		
Prim Bldg Use	047		
Exterior Finish	C: Concrete	+	
Wall Height	14.00		
Structure Class	C: Brick/Concr		

Illustration 2

Illustration 3 shows the CAMA sketch of the sample building we'll be using throughout this exercise.

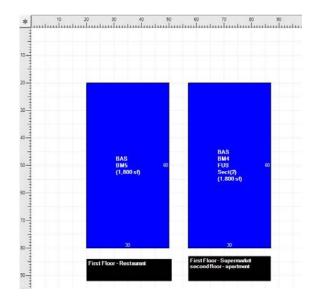


Illustration 3

.



1. First, let's illustrate the calculation of the Effective Area of our sample building's first section, the restaurant.

```
Building RCN = [Section<sub>1</sub> (Base Rate * Effective Area * Size Adjustment) * (MV_0 * MV_2 * ... * MV_n)] + [Section<sub>n</sub> (Base Rate * Effective Area * Size Adjustment) * (MV_0 * MV_2 * ... * MV_n)] + [\sum Special Building Features]
```



The Effective Area is comprised of the totals of the Bas(1) Main Building Area @ 1,800 SF and the BM5(1) Basement, Full Finish @ 1,800 SF for a total of 3,600 SF.

The second section's Effective Area is calculated in the same manner.



BAS(2) Main Building Area, BM4 (2)Basement Semi-finished, and FUS (2) Upper Story, Finished total 4,860 SF. The adjustment to the semi-finished basement takes into account this area is not as expensive as the finished main building area. For example, if the base rate for the finished main building area is \$100/SF, the rate for the semi-finished basement area may only be \$70/SF. The RCN value of the basement would be calculated as follows:

RCN of Basement = \$126,000 or (1800 SF * \$70)

Another way to state the same situation is to adjust the size of the basement to 70% of its measured size and then multiply the resulting, *or effective*, size by the base rate of \$100/SF:

Both methods arrive at the same value for the basement. The first method is more intuitive and easier to explain to taxpayers as it adjusts for the differences in costs for the various areas. The second method again provides the same results but is much easier to model and calculate within a CAMA system, thus the effective area calculations shown here represent the methodology employed in the Vision[©] CAMA system.

The Gross Area shown in Illustration 2 is the total unadjusted size of all the areas that are a part of the building. The Living Area is more properly called "Gross Floor Area" and is the unadjusted size of the actual finished floor area above grade in the building.

With the inclusion of the Effective Area calculation, our cost model now looks like this:

```
Building RCN = [Section<sub>1</sub> (Base Rate * 3600 * Size Adjustment) * Effective Area  (MV_0 * MV_2 * ... * MV_n)] + \\ [Section_n (Base Rate * 4860 * Size Adjustment) * \\ Effective Area \\ (MV_0 * MV_2 * ... * MV_n)] + \\ [\sum Special Building Features]
```

2. Next, let's look at the selection of the Base Rate for the sample building. There will be two rates because there are two different sections. Each section's RCN will be independently calculated.

```
Building RCN = [Section<sub>1</sub> (\frac{\text{Base Rate}}{\text{MV}_0 * \text{MV}_2 * ... * \text{MV}_n})] +

[Section<sub>n</sub> (\frac{\text{Base Rate}}{\text{MV}_0 * \text{MV}_2 * ... * \text{MV}_n})] +

[\frac{\text{MV}_0 * \text{MV}_2 * ... * \text{MV}_n}{\text{MV}_2 * ... * \text{MV}_n}] +

[\sum \text{Special Building Features}]
```

The Base Rate is the dollar rate per square foot used in the valuation model that is derived from tables within the CAMA system. It is selected based on the building's Building Occupancy (Use) Code and Construction Class. Our sample's first section is a "45-Store-Restaurant" constructed as a Class "C", concrete block/brick building. Based on this information, the Base Rate of \$ 180.25 is automatically selected. The second section, "47-Store-Super Market", also constructed as a Class "C", concrete block/brick building, has a Base Rate of \$103.14.

With the inclusion of the selected Base Rates, our model now looks like this:

```
Building RCN = [Section<sub>1</sub> ( $180.25 * 3600 * Size Adjustment) * Base Rate Effective Area  (MV_0 * MV_2 * ... * MV_n)] + \\ [Section_n ( $103.14 * 4860 * Size Adjustment) * Base Rate Effective Area \\ (MV_0 * MV_2 * ... * MV_n)] + \\ [\sum Special Building Features]
```

3. Next, let us turn our attention to a modification to the Base Rate - the Size Adjustment.

```
Building RCN = [Section<sub>1</sub> (Base Rate * Effective Area * Size Adjustment) * (MV_0 * MV_2 * ... * MV_n)] + [Section<sub>n</sub> (Base Rate * Effective Area * Size Adjustment) * (MV_0 * MV_2 * ... * MV_n)] + [\sum Special Building Features]
```

The Size Adjustment modifies the Base Rate to account for the size difference between the "standard size" for the "typical" building of a particular occupancy type and the actual size of the sample building. The comparison is based on the building's "gross floor area." The "standard" size of 5,000 square feet for the "typical" restaurant is used as the basis for establishing the initial Base Rates used in Section 1 of this appraisal.

The "standard" size of 4,000 square feet for the "typical" retail-misc. is used as the basis for establishing the initial Base Rates used in Section 2.

The adjustment in the Base Rate allows the proper square foot rate to be applied to a building based on its size. It is reasonable to expect that as a building becomes larger than typical, the rate per square foot would decrease and conversely, if the building were smaller than typical, the rate would be higher. The Size Adjustment variable is the component in the model that adjusts for this situation. Our sample building's size, the "gross floor area," is the total area of both sections, 5,400 square feet. Our building is only slightly larger than the standard size of 5,000 square feet. The Size Adjustment is 1.16763. Now our Adjusted Base Rate is calculated to be \$223.26 (180.25 *1.23860) for Section 1 and \$127.75 (103.14 *1.23860) for Section 2 of our example.

Because the adjustment is larger than 1.00, it would be proper to conclude that our sample building is smaller than the typical building of its type in the District of Columbia. Our sample building was compared to the larger of the two "standard" sizes, 5,000 square feet. Had the sample building been smaller than 5,000 square feet, the Size Adjustment would have been greater than 1.00. The use of size adjustments eliminates the need for the traditional cost tables based on size.

The cost model continues to grow, and now looks like this:

```
Building RCN = [Section<sub>1</sub> ( $180.25 * 3600 * 1.23860) * Base Rate Effective Area Size Adjustment (MV_0 * MV_2 * ... * MV_n)] + [Section<sub>n</sub> ( $103.14 * 4860 * 1.23860) * Base Rate Effective Area Size Adjustment (MV_0 * MV_2 * ... * MV_n)] + [\sum Special Building Features]
```

4. The next portion of the cost model used to calculate the RCN are the multiplicative variables (MV).

This portion of the formula can have the largest influence on the cost model. Each multiplicative variable modifies *all* of the cost data that has preceded it. These variables modify the Base Rate and Size Adjustment. This is where such important characteristics as the CDU (condition, desirability, utility), building grade, local cost multipliers, Neighborhood and Sub Neighborhood location factors have their impact.

The CDU, or Condition Desirability Utility, is the first of our multiplicative variables. This variable is used to account for a property's general overall physical condition and to a lesser extent the desirability and the utility of the property. Our sample building has been listed as "Good" and the appropriate multiplicative variable is 1.15. Stated a different way, the "Good" CDU will increase the RCN of our building by 15%. This one variable, CDU, can have a profound impact on the RCN of a building. The range can increase the RCN for an "Excellent" building by 35% all the way down to a 90% reduction in RNC for an "Unsound" building.

The sample building is graded "Good Quality - 4", and consequently has a 1.12 multiplicative variable. This one variable, grade, is going to increase the RCN value of the sample building by 12%. Another MV, "DC Local Multiplier C" modifies costs to account for the small additional costs incurred in construction of "C" class buildings in the in the DC area. The other multiplicative variable, "COMM NBHD 9", is the local neighborhood multiplier established for the particular neighborhood where the sample building is located. This variable is going to increase the RCN value of the sample building by 10%. The "COMM NBHD" adjustment reflects the market-derived fact that location is a very significant factor in the value of real estate. Two otherwise identical buildings can have a substantial difference in value based on their locations.

These four variables are summarized in the Cost.dat file as follows:

Each MV is multiplied together to determine the combined, or overall, MV. The sample building's MV is 1.4168 (1.15 * 1.12 * 1.1).

5. Except for the Special Building Features, our RCN model is complete and contains the specific data for the sample building used in this demonstration. The RCN cost model for the sample building is as follow:

```
Building RCN = [Section<sub>1</sub> ($180.25 * 3600 * 1.23860) *

Base Rate Effective Area Size Adjustment
( 1.4168 )] +

Multiplicative Variables
[Section<sub>n</sub> ($103.14 * 4860 * 1.23860) *

Base Rate Effective Area Size Adjustment
( 1.4168 )] +

Multiplicative Variables
[∑ Special Building Features]
```

The RCN for Section 1, the restaurant is \$ 1,138,733 (\$180.25 * 3600 + 0) * 1.23860 * 1.41680). The package goods store's RCN is \$879,642 (\$103.14 * 4860 * 1.23860 * 1.41680).

The Cost.dat file shows a summary of the same information as follows:

Section #1

Base Rate: 180.25 Size Adjustment: 1.23860 Effective Area: 5400

Adjusted Base Rate = (180.25 + 0) * 1.23860

Adjusted Base Rate: 223.26

RCN = ((223.26 * (3600 + 0) + 0) * 1.4168

RCN: 1138733
Section #2
Base Rate: 103.14
Size Adjustment: 1.23860

Effective Area: 5400

Adjusted Base Rate = (103.14 + 0) * 1.23860

Adjusted Base Rate: 127.75

RCN = ((127.75 * 4860) + 0) * 1.41680

RCN: 879642

So far, the RCN of the building is \$ 2,018,375 (1,138,733+879,642). We still have Special Features to add to complete the cost model.

6. The Special Features component is the last portion of the cost model. This is the place where such things as sprinklers and HVAC systems are accounted for and valued in the building.

Building RCN = [Section₁ (Base Rate * Effective Area * Size Adjustment) *
$$(MV_0 * MV_2 * ... * MV_n)$$
] + [Section_n (Base Rate * Effective Area * Size Adjustment) * $(MV_0 * MV_2 * ... * MV_n)$] + [Special Building Features]

Take a look at illustration 7. Here we see that both sections are sprinklered and heated and cooled with a complete HVAC system. Both of these Special Building features are calculated based on the size, in square feet, of the area affected. Their value is determined by the size, dollar rate and quality grade for each feature. Finally, the Special Building Features are depreciated at the same rate as the main buildings.

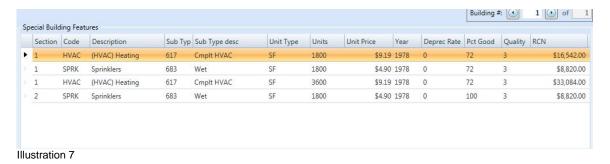
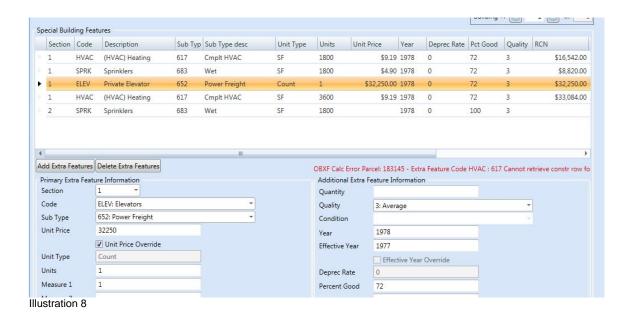


Illustration 8 shows the data-entry screen, as it would look if we were to add an elevator to the building.



Note that this extra feature's UOM (unit of measurement) is by count and not SF. For each count, the unit price is \$35,250. Be sure that the UOM is proper for the individual special feature included in the building.

The total RCN of the Special Feature in this sample is \$ 67,266 (Σ Special Building Features =16,542 + 8,820 +33,084 + 8,820).

We now know the total replacement cost new (RCN) of our sample building, including Special Features, is \$ 2,085,641 (\$2,018,375 + \$67,266).

```
$2,778,884 =
                                                3600
                                                               1.23860) *
                   [Section<sub>1</sub> ( $180.25
Building RCN
                               Base Rate
                                            Effective Area Size Adjustment
                        1.4168 )] +
                      Multiplicative Variables
                                                               1.23860) *
                    [Section<sub>n</sub> ( $103.14
                                                4860
                               Base Rate
                                           Effective Area Size Adjustment
                    ( 1.4168
                                 )] +
                      Multiplicative Variables
                    [$67,266]
                  [\sum Special Building Features]
```

If the sample building were brand new, we'd be finished, but it was actually built in 1953.

Next, we need to address accrued depreciation . . .

Depreciation

Depreciation is defined as a loss in the upper limits of value from all sources. Typically, three types of depreciation can affect real estate - physical deterioration, functional obsolescence and economic obsolescence. This next portion of the demonstration will illustrate how Vision[©] calculates the amount of depreciation accrued to our sample building.

Several terms come into use when discussing depreciation in CAMA. They are defined as follows:

- <u>Actual Age</u>: The mathematical difference between the Base Year and the actual year the improvement was built to completion.
- <u>Actual Year Built (AYB)</u>: The earliest time the main portion of the building was built. It is not affected by subsequent construction.
- <u>Base Year</u>: The year, usually the current year, that the depreciation table is calibrated, such that the age of a building built during the base year would be 0 years old.
- <u>Depreciation Table</u>: A market-driven table that lists the amount of depreciation corresponding to an Effective Year Built and the Base Year predicated upon a specific economic life.
- <u>Economic Life</u>: The useful life span for a structure based on its occupancy (use) code and its construction class.
- <u>Effective Age</u>: The mathematical difference, in years, between the Base Year and the Effective Year Built.
- Effective Year Built (EYB): The calculated or apparent year, that an improvement
 was built that is most often more recent than AYB. The EYB is determined by the
 condition and quality of the improvement. Subsequent renovation, additions,
 upgrades and the like, extend an improvements remaining economic life and
 therefore cause the EYB to be closer to the Base Year than the AYB.
- <u>Percent Good</u>: The mathematical difference between 100 percent and the percent of depreciation. (100% - depreciation %) = percent good

The RCN model used above indicated that our sample building has an RNC of \$2,778,884. As stated earlier, the building was built in 1953, so there should be some depreciation to deduct from the RCN. We'll use a seven-step process to depreciate the improvements:

- 1. Calculate the Actual Age of the improvement.
- 2. Determine the Effective Age of the improvement.
- 3. Determine the improvement's Effective Year Built.
- 4. Look-up Depreciation corresponding to EYB on depreciation table.
- 5. If required, modify the depreciation by the amount given for obsolescence.
- 6. Apply final depreciation to RCN to determine RCN-LD.
- 1. Our first step is to calculate the Actual Age of our sample building. As you are aware, a valuation is always qualified as of a specific date. For ad valorem purposes in the District of Columbia, the valuation date is January 1 immediately preceding the tax year. In our example, the tax year is 2016, therefore the valuation date is January 1, 2015. This date is also significant in terms of the depreciation accrued to improvements. In the past, the nature of triennial assessments required that base years within a Tri-Group remain unchanged for a period of three years. Now, however, with the return to annual assessments, the base year coincides with the valuation date. The base year is used to determine the Actual Age of the sample building. In this case, the Actual Age of the sample building is 62 years (2015-1953).
- 2. The next step is to determine the sample building's Effective Age. Effective Age may or may not represent actual or chronological age. The premise is simple but the application can be confusing. If a building is built and never maintained (painting, reroof, etc.) or remodeled, the building would quickly depreciate from physical deterioration. The CAMA system would depreciate the building at the fastest rate possible based on the selected Depreciation Table. For example, our building has an economic life of sixty years. If the building were left to rot, the Effective Age would most likely be the same as the Actual Age.

Let's say the owners of our sample building have completely neglected their property from the time it was built in 1953 to the present. Their building would have an effective age of 62 years as indicated on the Depreciation Table below:

		70 Year Economic Life	e	60 Year Economic Life	e	50 Year Economic Lif	e
	Effective Year	Percent of	Percent	Percent of	Percent	Percent of	Percent
Age of Building	Built	Depreciation	Good	Depreciation	Good	Depreciation	Good
0	2015	0	100	0	100	0	1
1	2014	0	100	0	100	0	1
35	1980	16	84	23	77	36	
36	1979	17	83	25	75	38	
37	1978	18	82	26	74	42	
38	1977	19	81	28	72	44	
39	1976	20	80	31	69	48	
40	1975	21	79	32	68	50	
41	1974	23	77	34	66	52	
42	1973	25	75	36	64	56	
43	1972	26	74	38	62	57	
44	1971	28	72	40	60	61	
45	1970	29	71	44	56	63	
46	1969	31	69	46	54	64	
47	1968	32	68	48	52	66	
48	1967	34	66	50	50	67	
49	1966	36	64	52	48	70	
50	1965	38	62	54	46	71	
51	1964	40	60	57	43	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
52	1963	42	58	59	41		
53	1962	44	56	61	39		
54	1961	46	54	63	37		
55	1960	48	52	64	36		
56	1959	50	50	65	35		
57	1958	52	48	67	33		
58	1957	54	46	69	31		
59	1956	56	44	70	30		
60	1955	57	43	71	29		
61	1054	50	41	70	20		
62	1953	61	39	73	27		
US	1902	03	31				
64	1951	64	36				
65	1950	65	35				
70	1949	71	29				

Illustration 9

The Actual Year Built (1953) and the Effective Year Built (1977) the Effective Age would be 38 years. Moving across the table, we see that a building with an EYB of 1977 has 28 percent depreciation and therefore is 72 Percent Good (100%-28%). If the RCN of our sample building is \$2,085,641 the depreciated value, RCN-LD, is only \$2,000,796 (2,778,884 * 0.72).

The situation described above rarely, if ever, occurs in the market. People do maintain and renovate their buildings and in doing so, extend the building's useful or remaining economic life. As building owners repair roofs, paint siding, replace windows and furnaces, they *prolong* the life of the building and consequently *decrease* its Effective Age.

A recent building remodel, renovation or rehabilitation will go a long way to extend its useful life. As the useful life is extended, the Effective Age is reduced and therefore the Effective Year Built is more recent than the building's Actual Year Built.

Our sample building had a major renovation done in 1998. The portion of the CAMA record that captures this information is shown in Illustration 10 below.

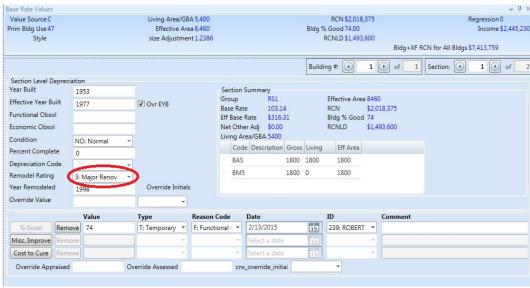


Illustration 10

Two factors come together to determine the impact a remodel has on the amount of depreciation calculated for the building – the Remodel Rating and the Year Remodeled. How extensive the remodel is and how recently it has occurred combines to determine its overall affect on its effective year built, and in turn, the building's depreciation. A brand-new gut rehab would substantially decrease the effective age of a building much more so than an older remodel. Conversely, an older remodel may have little or no affect on the depreciation.

We'll see the significance of that renovation in a moment, but first, back to our sample building's Effective Age calculation.

The construction class of the building also affects the calculation of Effective Age. It is only natural that an "A" class structure would have a longer economic life than a "D" class building (recall the story of the three little pigs). The Structure Class Age Factor makes allowance for this situation by reducing the effective age of an "A" class building by more than, say, a "D" building. As an example, CAMA reduces the effective age by 20% for "A" buildings, 15% for "B" structures, 10% on "C" buildings, and no adjustment for the "D" class buildings.

The features or variables dealing with the effective age calculation are multiplicative variables. As such, they are multiplied one by the other and then the Actual Age is multiplied by the product of the MVs. Below is the portion of the Cost.dat file that summaries these MV for our sample building.

REHAB FACTOR 3 = .45 * Age STRUCTURE CLASS AGE FACTOR C = .9 * Age REHAB YEAR = 1.5 * Age

The product of each of these MV adjustments is calculated to be 0.46575 (0.45 * 0.90 * 1.5). This product is then multiplied by the Actual Age to calculate the Effective Age. Recall our sample building's Actual Age is 62 years. The Effective Age is calculated to be 38 years (62 * 0.6075). Instead of CAMA using 62 chronological years to calculated depreciation, it will use 38 years, based on the building's quality and renovation. The portion of the Cost.dat file that illustrates this information is below:

Actual Year Built: 1953 Effective Age = 62 * .6075 Effective Age: 38 Percent Good = 72 RCNLD:819890

Back to our renovation, the 1998 major renovation done to the building reduced the effective age to 60.75% (Rehab Factor 3 = .45 * Rehab Year = 1.5) of the 62 years of actual age, resulting in an effective age of 38 years old. What impact on the effective age would there be if just a small remodel occurred in 1990? We would expect the effective age not to shorten, or decrease, as much. Let's see what happens.

As you know, CAMA has many calibrated variables associated with all of the calculations it makes to determine the RCN and calculate depreciation. Again, the two variables that come into play here are the Rehab Factor and the Rehab Year. We've just seen the values of those variables were with regard to the recent major renovation example. For the 1990 remodel the values are: Rehab Factor 4= 0.55 and Rehab Year = 1.5. This combination will reduce the effective age to 82.5% (0.55 * 1.5) of the 62 years of actual age, as a result, making the effective age now 31 years old.

The difference between the two scenarios is seven years. Without doing all math, the difference in the appraised value as a result an effective age of 38 years verses 31 years is about \$200,000 on a building with a RCN of \$2,085,641. The proper documentation of remodel activity is significant when arriving at proper appraised values.

- 3. We're almost finished. Knowing the Effective Age makes the calculation of the Effective Year Built for our sample building very simple. The Effective Year Built is 1977 (2015 38).
- **4.** Having established the Effective Year Built, we look up 1977 on the *60 Year Economic Life Depreciation Table* and find that the Depreciation is 28% for that year. See Illustration 11.

Base Year 2015	5						
		70 Year Economic Lif	e	60 Year Economic Lif	e	50 Year Economic Life	
Age of Building	Effective Year Built	Percent of Depreciation	Percent Good	Percent of Depreciation	Percent Good	Percent of Depreciation	Percent Good
0	2015	0	100	0	100	0	10
1	2014	0	100	0	100	0	10
20	1995	5	95	6	94	9	9
21	1994	5	95	7	93	10	9
22	1993	6	94	8	92	12	8
23	1992	6	94	9	91	13	8
24	1991	7	93	9	91	15	8
25	1990	7	93	10	90	16	8
26	1989	8	92	11	89	17	8
27	1988	9	91	13	87	19	8
28	1987	9	91	14	86	20	8
29	1986	10	90	15	85	23	7
30	1985	11	89	16	84	25	7:
31	1984	12	88	17	83	26	7-
32	1983	13	87	18	82	29	7

You may notice that there is a conflict between the Cost.dat file and the depreciation table with regards to "Percent Good." The Cost.dat file report that our building's percent good is 74, whereas the depreciation table says it's 83. The explanation is addressed in step 5, dealing with obsolescence and direct adjustments to depreciation, not effective year built calculations.

5. If the assessor notes any obsolesce, this is where it is addressed. Recall from the outset that we defined depreciation as a loss in value resulting from physical deterioration, functional and/or economic obsolescence. The demonstration up to this point has dealt only with depreciation attributed to the physical deterioration of the sample building. This, by far, is the most common type of depreciation that exists in commercial property. However, occasions may require additional depreciation because of excessive physical deterioration, functional and/or economic obsolescence. One must use caution when invoking these types of depreciation. The market must support any decision regarding the extent of these adjustments.

Our sample building is suffering from a small amount of functional obsolescence. The assessor has noted that the interior design of the building contains many support columns interrupting the efficient use of the floor space. As a result, the restaurant has a few less tables and the package goods store does not have a good aisle layout. Consequently, it is appropriate to allow for a small amount of functional obsolescence – five percent.

Illustration 12 shows the results of this additional allowance for functional obsolescence. Whereas the depreciation table in illustration 3 shows the percent good for 31 years at 83%, by subtracting the 11% attributed to functional obsolescence, we are left with 72% (rounding error) as the percent good for our building. This matches the figure shown in the Cost.dat file.

								Build	ing #: 🚺	1 🕟 o	f 1	Section:	1 • of
Section Level D	epreciatio	on											
Year Built	1	953			Section	on Summary							
Effective Year B	uilt 1	977	Ovr EYB		Group		RS1		Effective Area				
Functional Obse	ol				Base F		103.14 \$316.31		RCN	\$2,018,375			
Economic Obso					10000000		\$0.00		Bldg % Good RCNLD	\$1,493,600			
						Area/GBA			KCIVED	\$1,433,000			
Condition	1	O: Normal -					ption Gross	Living	Eff Area				
Percent Comple	•				1200	AS	1800		1800				
Depreciation Co	ode	-			150	6-	2000	(0.712-0.7)	55750				
Remodel Rating	3:	Major Renov -			Bi	M5	1800	0	1800				
Year Remodele	d 1	998	Override Initia	als									
Override Value			-										
		Value	Туре	Reason	Code	Date			ID	Comr	nent		
% Good	Remove	74	T: Temporary	Physical	Depr	2/13/20)15	15	239: ROBERT	+			
Misc. Improve	Remove		-			Select a	date	15		7			
Cost to Cure	Remove		-			Select a	date	15		+			
Override App	raised	0	verride Assessed			cns_override	e_initial		+				
lustration													

The actual mechanics of adjusting depreciation for functional or economic obsolescence within CAMA are briefly discussed below. If the situation occurs, seek guidance from your supervisor and/or CAMA manager.

The "Status" field's pick-list is expanded in Illustration 13 to show only those types of items that have a direct affect on depreciation and the nature of the affect. Notice that only a limited number of Status Codes are functional within CAMA and their affect on depreciation is either to *replace* the existing amount in the "% Good" field or *decrease* the "% Good." The corresponding numeric amount that will affect the "% Good" is entered in the field called "Percent Complete." Please note that the field name "Percent Complete" is somewhat erroneous because the word "Complete" has no meaning in this context. This is the field that you will enter the amount to either decrease the existing "% Good" or replace the existing "% Good", based on the Status Code selected.

	Status Code:	s
Code	Description	Affect on % Good
0	Default	NONE
Α	Abandoned/Boarded	NONE
В	Burned Out	NONE
C	Commercial New Const	REPLACE
E	Economic Dep	DECREASE
F	Functional Dep	DECREASE
G	Gut Hehab	NUNE
H	Data Change	NONE
L	Limited Equity	NONE
М	Demolition	NONE
N	N/A	NONE
NO	Normal	NONE
TOV	Overall Depreciation	REPLACE
P	Physical Depr	DECREASE
PA	Partial Abandon	NUNE
B	Renovation	NONE
T	Order of Taking	NONE
V	Vacant	NONE

6. The last step in the process is to simply multiple the RCN by 0.72 and we have RCN LD of the building. Knowing the total RCN of our sample building is \$\$ 2,085,641, the RCN LD is \$1,501,662 (\$ 2,085,641 * 0.72).

Conclusion

This exercise has been prepared to assist the commercial assessor understand some of the concepts, features and techniques employed by the Vision® CAMA system in arriving at a cost approach to valuation of commercial properties in the District of Columbia. It does not serve as an exhaustive training manual. Any specific questions regarding the features and operations of this CAMA should be directed to your supervisor or the CAMA manager.

Appendix "A"

- 1. Property Record Card, SSL 9999 8888
- 2. Cost.dat print-out, SSL 9999 8888
- 3. Land.dat print-out, SSL 9999 8888
- 4. 2007 CAMA Construction Valuation Guideline

Account # 9999 8888 Property Location 9999 9TH ST NW Card # 1 of 2 Use Code 045 Internal ID 183145 WASHINGTON. DC Bldg # 1 of 1 Sec # 1 of 2 Print Date 2/27/2015 9:41:37 AM **CURRENT OWNER ACCOUNT INFORMATION CURRENT ASSESSMENT** Description Code | Assessed Val **TEST OWNER** Use Type Use Code Lot SF Status Code COM LAND 045 2.364.000 COMM С 045 999.999 Α COMMERCL 045 1,513,780 9999 9TH ST **VISIT / CHANGE HISTORY** Date Type Inf. Source | Code | Description Value Src: С Total: 3,877,780 **District of Columbia** Washington DC 20002 DATA ENTRY **Real Property** Entry ID: Entry Date: / / **Assessment Division OWNERSHIP HISTORY** PREVIOUS ASSESSMENTS (HISTORY) **INSTRUMENT #** SALE DATE v/i SALE PRICE q/u Year Use Type Val Source Land Value **Building Value** Assessed Value **TEST OWNER** 01 123456 10-28-2013 Q 120.000.000 2016 045 С С 2,364,000 1,513,780 3,877,780 С 2015 052 С 2,999,970 111,224,440 114,224,410 2014 021 С 1.433.000 15.428.970 Α 13.995.970 2013 021 13,995,970 1,679,030 15,675,000 Α 2012 С 021 Α 13,995,970 1,328,140 15,324,110 2011 045 С С 13,995,970 1,250,920 15,246,890 **MIXED USE APPEALS** 1 274 640 15 270 610 13 005 070 2010 045 C Code % Description Appeal # Decision Amount Revised AV ASSOCIATED PARCELS 045 Store-Restaurant 100 Primary SSL SSL USE Lot Size % Total Value 0 0 9999 8888 999,999 3,877,780 TAX TYPE SUPPLEMENTAL DATA Year Description Type Description Type 2006 TX **TAXABLE** Part Part 0 2005 TX **TAXABLE** Mixed Use 0 2004 TX **TAXABLE** Vcnt Lnd Use 045 2003 TX **TAXABLE Model Type** 0 2002 TX **TAXABLE Restr Resale COMMENTS** 2001 TX **TAXABLE Abbutt Lot** 0 2000 TX **TAXABLE** Zone Overlav **PUD PARCEL LOCATION SUMMARY** SSL NBHD SUB-NBHD ZONING WARD GROUP ARN 9999 8888 9 0 CR 6 1 408 **BUILDING PERMIT RECORD** Permit ID Issue Date | Type Description Insp Date Amount LAND LINE VALUATION SECTION Zone Depth Units LT Price Adjustments/Special Use Land Value Description Frontage I. Factor Size Adi Site Rating Notes CR 12000.000 SF Store-Restaurant 100 200 1.000000 1 197.00 0.0000 100.00 2,364,000

Total Land Value

2.364.000

Total Land Units

12,000 SF

Property Location 9999 9TH ST NW Account # 9999 8888 Card # 1 of 2 Use Code 045 Internal ID 183145 WASHINGTON. DC Bldg # 1 of 1 Sec# 1 of 2 Print Date 2/27/2015 9:41:37 AM **CONSTRUCTION DETAIL** SKETCH Element Description Element Cd Ch. Description Ch. Style Brick/Concr CDU Good Model 94 Commercial Grade 40 Good Stories # Units 1.00 Shape/Peri Rectangular С Structure Cla Brick/Concr Wall Height 12.00 BAS Occupancy 045 Store-Restaurant BAS **BM4 BM5 FUS** 60 60 **BUILDING SUMMARY SECTION BUILDING COST SUMMARY** (1,800 sf) Sect(2) Sect # | Code SFLA Effective Area Description GBA Eff Area 8,460 (1,800.01 sf) 1.800 Building RCN 1,138,733 BAS Main Building Area 1,800 1,800 0 Spec. Feat RCN 31,703 BM5 Basement, Full Finish 1,800 1,800 1,800 Total RCN 1,170,436 2 **BAS** Main Building Area 1,800 1,800 0 % Good 72 2 **Basement Semi-finishe** 1,260 BM4 1,800 1,800 Building Cost 842,714 **FUS** Upper Story, Finished 1,800 1,800 **BUILDING INFORMATION** & DEPRECIATION 30 30 Total Bldg Stories 8,460 Primary OCC 045 Total: | 9,000 8,460 Structure Class First Floor - Supermarket First Floor - Restaurant **COST VALUE SUMMARY** Actual Year Built second floor-apartment 1953 Land Value 2,364,000 Туре Year Renovated 1998 Reason **Building Value** 1,453,230 Remodel Rating Detached Structures Date Effective Year Built 1977 Misc. Improvements ID CDU G Cost to Cure (-) Comment Status NO Final Cost Value 3,877,780 % Complete % Good Override Type Reason Comment BUILDING SPECIAL FEATURES/AMENITIES
iption Units | UOM | Unit Price | RCN Code Description Grade **HVAC** (HVAC) Heating 1.800 SF 20.678 9.19 4 SF **SPRK** Sprinklers 1,800 4.90 4 11,025 **ELEV** Elevators 0 Coun 67030.00 3 0 **DETACHED STRUCTURES** Units | UOM | Unit Price | Grade | Cdntn RCN Assessed Val Code Description

Account # 9999 8888 Property Location 9999 9TH ST NW Card # 2 of 2 Use Code 045 Internal ID 183145 WASHINGTON. DC Bldg # 1 of 1 Sec # 2 of 2 Print Date 2/27/2015 9:41:37 AM **CURRENT OWNER ACCOUNT INFORMATION CURRENT ASSESSMENT** Description Code | Assessed Val **TEST OWNER** Use Type Use Code Lot SF Status Code **COM LAND** 045 2.364.000 COMM С 045 999.999 Α COMMERCL 045 1,513,780 9999 9TH ST **VISIT / CHANGE HISTORY** Date Type Inf. Source | Code | Description Value Src: С Total: 3,877,780 **District of Columbia** Washington DC 20002 DATA ENTRY **Real Property** Entry ID: Entry Date: / / **Assessment Division OWNERSHIP HISTORY** PREVIOUS ASSESSMENTS (HISTORY) **INSTRUMENT #** SALE DATE v/i SALE PRICE q/u Year Use Type Val Source Land Value **Building Value** Assessed Value **TEST OWNER** 01 123456 10-28-2013 Q 120.000.000 2016 045 С С 2,364,000 1,513,780 3,877,780 С 2015 052 С 2,999,970 111,224,440 114,224,410 2014 021 С 1.433.000 15.428.970 Α 13.995.970 2013 021 13,995,970 1,679,030 15,675,000 Α 2012 С 021 Α 13,995,970 1,328,140 15,324,110 2011 045 С С 13,995,970 1,250,920 15,246,890 **MIXED USE APPEALS** 1 274 640 15 270 610 13 005 070 2010 045 C Code % Description Appeal # Decision Amount Revised AV ASSOCIATED PARCELS 045 Store-Restaurant 100 Primary SSL SSL USE Lot Size % Total Value 0 0 9999 8888 999,999 3,877,780 TAX TYPE SUPPLEMENTAL DATA Year Description Type Description Type 2006 TX **TAXABLE** Part Part 0 2005 TX **TAXABLE** Mixed Use 0 2004 TX **TAXABLE** Vcnt Lnd Use 045 2003 TX **TAXABLE Model Type** 0 2002 TX **TAXABLE Restr Resale COMMENTS** 2001 TX **TAXABLE Abbutt Lot** 0 2000 TX **TAXABLE** Zone Overlav **PUD PARCEL LOCATION SUMMARY** SSL NBHD SUB-NBHD ZONING WARD GROUP ARN 9999 8888 9 0 CR 6 1 408 **BUILDING PERMIT RECORD** Permit ID Issue Date | Type Description Insp Date Amount LAND LINE VALUATION SECTION Zone Depth Units LT Price Adjustments/Special Use Land Value Description Frontage I. Factor Size Adi Site Rating Notes CR 12000.000 SF Store-Restaurant 100 200 1.000000 1 197.00 0.0000 100.00 2,364,000

Total Land Value

2.364.000

Total Land Units

12,000 SF

Property Location 9999 9TH ST NW Account # 9999 8888 Card # 2 of 2 Use Code 045 Internal ID 183145 WASHINGTON. DC Bldg # 1 of 1 Sec # 2 of 2 Print Date 2/27/2015 9:41:38 AM **CONSTRUCTION DETAIL** SKETCH Element Description Element Cd Ch. Description Ch. Cd Style Brick/Concr CDU Good Model 94 Commercial 40 Grade Good 2 Stories 2.00 # Units Shape/Peri Rectangular С Structure Cla Brick/Concr Wall Height 14.00 BAS Occupancy 047 Store-Super Market BAS **BM4 BM5 FUS** 60 60 **BUILDING SUMMARY SECTION BUILDING COST SUMMARY** (1,800 sf) Sect(2) Sect # | Code SFLA Effective Area Description GBA Eff Area 8,460 (1,800.01 sf) 1.800 Building RCN 879,642 BAS Main Building Area 1,800 1,800 0 Spec. Feat RCN 52,380 BM5 Basement, Full Finish 1,800 1,800 1,800 Total RCN 932,022 2 **BAS** Main Building Area 1,800 1,800 0 % Good 72 2 **Basement Semi-finishe** 1,800 1,260 BM4 1,800 Building Cost 671,056 **FUS** Upper Story, Finished 1,800 1,800 **BUILDING INFORMATION** & DEPRECIATION 30 30 Total Bldg Stories 2 8,460 Primary OCC 045 Total: 9,000 8,460 Structure Class First Floor - Supermarket First Floor - Restaurant **COST VALUE SUMMARY** Actual Year Built second floor-apartment 1953 Land Value 2,364,000 Туре Year Renovated 1997 **Building Value** Reason 1,453,230 Remodel Rating Detached Structures Date Effective Year Built 1977 Misc. Improvements ID CDU G Cost to Cure (-) Comment Status ΟV Final Cost Value 3,877,780 % Complete 72 % Good Override Type Reason Comment BUILDING SPECIAL FEATURES/AMENITIES
iption Units | UOM | Unit Price | RCN Code Description Grade **SPRK** 1.800 SF 11.025 Sprinklers 4.90 4 SF **HVAC** (HVAC) Heating 3,600 4 41,355 9.19 **DETACHED STRUCTURES** Code Units | UOM | Unit Price | Grade | Cdntn RCN Assessed Val Description

OUTPUT FROM NEW COST MODELING ENGINE REPORT GENERATED ON 27-Feb-2015 AT 09:39 **********Building #1 Calc Start********* Cost Calculation for pid, bid = 183145, 173784 Account Number = 9999 8888 Use Code = 045 Cost Rate Group = RS1 Model ID: = DCC Section #2 Section Use: Store-Super Market Base Rate: 103.14 Size Adjustment: 1.23860 Effective Area: 5400 Adjusted Base Rate = (103.14 + 0) * 1.23860Adjusted Base Rate: 127.75 RCN = ((127.75 * 4860 + 0.00000000000000000) * 1.41680000000000) + 0RCN: 879642 ******************Factor Adjustments********** GRADE $40 = 1.120 \times RCN$ COMM NBHD 9 = 1.100 x RCN CONDITION DESIRABILITY UTILITY G = 1.150 x RCN STRUCTURE CLASS AGE FACTOR C = 0.900 x Age CDU AGE FACTOR G = 1.000 x Age REHAB FACTOR $3 = 0.450000 \times Age$ REHAB YEAR $1997 = 1.500 \times Age$ Actual Year Built: 1953 Effective Age = 38************Depreciation Adjustments********** CDU DEPREC FACTOR G = 1.000 x Depreciation Percent Good = 72 RCNLD: 633340 *************************** Section #1

Section Use: Store-Restaurant

Base Rate: 180.25

Size Adjustment: 1.23860 Effective Area: 5400 Adjusted Base Rate = (180.25 + 0) * 1.23860Adjusted Base Rate: 223.26 RCN = ((223.26 * 3600 + 0.00000000000000000) * 1.41680000000000) + 0 RCN: 1138733 ******************Factor Adjustments********** GRADE $40 = 1.120 \times RCN$ COMM NBHD 9 = 1.100 x RCN CONDITION DESIRABILITY UTILITY G = 1.150 x RCN STRUCTURE CLASS AGE FACTOR C = 0.900 x Age CDU AGE FACTOR G = 1.000 x Age REHAB FACTOR $3 = 0.450000 \times Age$ REHAB YEAR $1998 = 1.500 \times Age$ Actual Year Built: 1953 Effective Age = 38 *******Depreciation Adjustments********* CDU DEPREC FACTOR G = 1.000 x Depreciation Percent Good = 72

RCNLD: 819890

2

Base Year 2015

Base Year 2015	
Age of Building	Effective Year Built
1	2013
2	2013
3	2012
4	2011
5	2010
6	2009
7	2008
8	2007
9	2006 2005
11	2004
12	2003
13	2002
14	2001
15	2000
16	1999
17	1998
18	1997
19	1996
20	1995
21	1994 1993
22	1993
23	1992
25	1990
26	1989
27	1988
28	1987
29	1986
30	1985
31	1984
32	1983
33	1982
34 35	1981 1980
36	1979
37	1978
38	1977
39	1976
40	1975
41	1974
42	1973
43 44	1972
44	1971 1970
45	1969
47	1968
48	1967
49	1966
50	1965
51	1964
52	1963
53	1962
54 55	1961
55 56	1960 1959
57	1959
58	1957
59	1956
60	1955
61	1954
62	1953
63	1952
64	1951
65	1950
70	1949

70 Year Economic Life	
Percent of	Percent
Depreciation	Good
0	100 100
0	100
0	100
1	99
1	99
1	99
1	99
1	99
2	98
2	98
2	98
2	98
2	98
3	97 97
3	97
4	96
4	96
4	96
5	95
5	95
6	94
6	94
7	93
7	93
8	92
9	91
9 10	91
10	90 89
12	88
13	87
14	86
15	85
16	84
17	83
18	82
19	81
20	80
21	79
23	77
25 26	75 74
28	72
29	71
31	69
32	68
34	66
36	64
38	62
40	60
42	58
44	56
46 48	54 52
50	50
50 52	48
52 54	46
56	44
57	43
59	41
61	39
63	37
64	36
65	35

71

60 Year Economic L	
Percent of	Percent
Depreciation	Good
0	100
0	100 100
1	99
1	99
1	99
1	99
1	99
2	98
2	98
2	98
2	98
3	97 97
3	97
4	96
4	96
5	95
5	95
6	94
6	94
7	93
8	92
9	91 91
10	90
11	89
13	87
14	86
15	85
16	84
17	83
18	82
20 21	80 79
23	79
25	75
26	74
28	72
31	69
32	68
34	66
36	64
38 40	62 60
40	56
46	54
48	52
50	50
52	48
54	46
57	43
59	41
61 63	39 37
64	36
65	35
67	33
69	31
70	30
71	29

50 Year Economic L	ifo
Percent of	Percent
Depreciation	Good
0	100
0	100
0	100
1	99
1	99
1	99
1	99
2	98
2	98
2	98
3	97
3	97
4	96
4	96
5	95
5	95
6	94
7	93
7	93
9	91
9	91
10	90
12	88
13	87
15	85
16	84
17	83
19	81
20	80
23	77
25	75
26	74
29	71
31	69
34	66
36	64
38	62
42	58
44	56
48	52
50	50
52	48
56	44
57	43
61	39
63	37
64	36
66	34
67	33
70	30
71	29

29

CONSTRUCTION DETAIL

Section Detail

No. Description Value

Building Stories

As Indicated.

Occupancy

As Indicated. Select from list.

Stories and #Units

As Indicated.

Structure Class

U	Delault
Α	Fireproof Steel
В	Reinforced Concrete
С	Con. Block/Solid Brick
D	Wood Frame
Р	Wood Pole

Steel/Sheet Metal

Exterior Finish

s

0	Typical
AS	Asphalt Siding
BR	Brick (Solid)
BV	Brick Veneer
С	Concrete
CB	Concrete Block
MS	Metal Siding
S	Stone
SU	Stucco
SV	Stone Veneer
WS	Wood Siding

Grade (Multiplies Base, Features)

0	Default	
0	Poor Quality	-30%
15	Poor+ Quality	-20%
20	Fair Quality	-10%
25	Fair+ Quality	-05%
30	Average Quality	
35	Average+ Quality	06%
40	Good Quality	12%
45	Good+ Quality	21%
50	Very Good Quality	30%
55	Very Good + Quality	38%
60	Excellent	45%

Story Height (Multiplies Base)

Currently not in use

Wall Height (Adds to Base Rate)

Currently not in use

CDU Condition, Desirability, Utility (Multiplies Base, Features)

Multip	lies Base, Featur	es)
ΞX	Excellent	35%
/G	Very Good	30%
3	Good	15%
٩V	Average	
=	Fair	-25%
>	Poor	-50%
/P	Very Poor	-70%
IS	Unsound	-90%

DEPRECIATION DETAIL

No. Description Value

Structure Class (Adjust EYB)

0	Default	0
Α	Fireproof Steel	-20%
В	Reinforced Conc.	-15%
С	Con. Block/Brick	-10%
D	Wood Frame	0
S	Steel/Sheet Metal	0

Remodel Rating (Adjusts EYB)

0	Default	
1	Unknown	-10%
2	Gut Rehab	-70%
3	Major Renovation	-55%
4	Remodel	-45%
5	Addition	-30%
6	Cosmetic	-10%

Year Remodeled (Adjust EYB)

2011-2014	0%
2009-2010	5%
2004-2008	15%
1999-2003	25%
Earlier-1998	50%

Extra Features (Flat and Sq Ft Add)

	Jacar OO (i lat alla	0 9
BL	Balcony	Flat
ELEV	Elevators	Flat
HVAC	Heat & Cool	Sq. Ft.
MZ	Mezzanines	Sq. Ft.
SPRK	Sprinklers	Sq. Ft.

Building RCN = [Section₁ (Base Rate *

Effective Area * Size Adjustment) *

(MV₀ * MV₂ * ... * MVℕ)] +

[Section₁ (Base Rate *

Effective Area * Size Adjustment) *

(MV₀ * MV₂ * ... * MVℕ)] +

[∑Special Building

Features]

Where:

RCN = Replacement Cost New

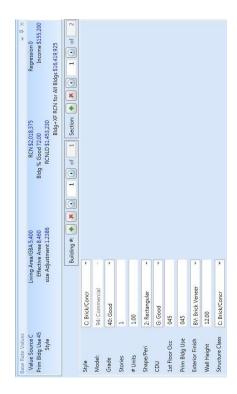
Base Rate = \$ rate based on occupancy (use) code and construction class

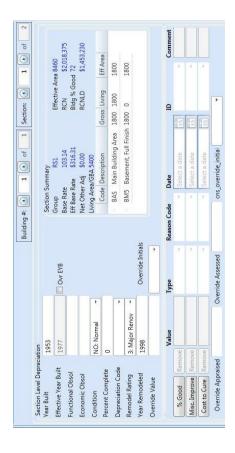
Section_ = Each separate building or section of building

Effective Area = Adjusted SF area of improvement

Size Adjustment = Adjustment factor for deviation from base size

MV = Multiplicative Variables





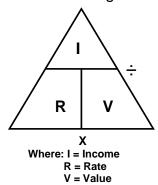
Vision® CAMA Income Approach Valuation Process

he income approach to the valuation of real property follows the generic formula of Market Value = NOI/Capitalization Rate, where NOI is the net operating income of the property and the Capitalization Rate is a market-derived overall direct capitalization rate. When properly developed and calibrated, this approach is a reliable indicator of market value of income producing properties within a mass-appraisal CAMA system.

The following exercise will illustrate how the Vision[©] CAMA system utilized by the District of Columbia calculates values using the above model. The first section will illustrate the traditional development of a market value estimate for a typical apartment building. This example will serve to provide a practical foundation for understanding the concepts of the income approach to valuation as well as an understanding of the major components of the Vision[®] CAMA methodology. The second section will illustrate the actual CAMA valuation of the apartment building described in the first section.

Income Approach to Value

An understanding of the income capitalization approach to value is essential in order to utilize the Vision® CAMA system's income model. Of the three traditional approaches to value (cost, market, income), the income approach is most often the appropriate approach when appraising property owned for it's ability to produce income to the owner. An owner anticipates future income production and the income approach quantifies the present value of the income derived from the ownership of the property. There are several varieties or forms of the income approach used to quantify or convert income into an estimate of value. The most widely used approach is direct capitalization. Direct capitalization involves converting one year's stabilized net operating income into an estimate of value in one direct step using an appropriate rate. The direct capitalization method is rooted in the market. The rate used to convert income into value represents the relationship between value and income through the following formula:



Formula 1

To determine an estimate of value, divide the income by the rate. The income is the net operating income (NOI) and the rate is the direct capitalization rate. For example, if a property generates an NOI of \$500,000 per year and the market-derived capitalization rate is 5 percent, the indicated value would be \$10,000,000 (\$500,000/.05).

Where do these two numbers come from? The first number, NOI, is determined by a combination of things. First, the income and expenses of the particular property are analyzed and "re-constructed" to produce the NOI. Re-constructing simply means that we analyze the income and more particularly the expenses to ensure that we have a true understanding and estimate of the amount of net operating income annually produced by the property. Oftentimes an income report will detail some expenses not directly associated with the property. For example, the debt service of a loan on the property may be subtracted from the gross income. This is not a proper expense as it is a function of the owner's financing and not an operating expense of the property. Another example may be a large "expense" taken against gross income that should be more properly spread over several years, or capitalized. Expense ratios are calculated for the various categories of expenses.

Another source for determining the NOI of a property is the analysis of many other similar properties for their income levels and expense levels or ratios. If the subject property's income and expenses are typical for similar properties, the actual NOI of the property becomes the amount to be capitalized by the rate. If, on the other hand, the property exhibits unusual income or expenses based on comparison of the ratios, some actual amounts of income or expenses may be substituted with the amounts represented by more typical ratios. The goal is to establish the typical level of NOI that a prudent investor would anticipate deriving from the property each year.

Where does the rate come from? The rate is the overall direct capitalization rate. This is the rate for the overall property used to convert a single year's income into an indication of value of the overall property using the IRV formula shown above. The rate is derived through sales analysis. Ideally, where arms-length sales of similar properties occur and the income and expense data are well known, a direct capitalization rate can be derived using the IRV formula. For example, suppose the subject property is an office building and a similar office building recently sold for \$750,000. The reconstructed income and expense analysis indicated that at the time of sale the property was producing an annual net operating income of \$60,000. Using the IRV formula, the capitalization rate of the property was 8 percent (\$60,000/\$750,000). Reliable capitalization rates are the result of the analysis of many sales of income producing properties.

The following illustration is an example of an income and expense statement for our sample property. The property, Breakaway Northwest, is a high-rise apartment complex consisting of a one eight story concrete block building. The building has 164 rental units, a management office, laundry facility and on-site surface parking. It is located close to the Convention Center in NW Washington,

DC. We'll use this property both here and in the example within Vision[®] CAMA in the second part of this tutorial.

Breakaway Northwest Apartments - December 31, 2010-				
Potential Gross Income Vacancy & Collection Loss (7%) Miscellaneous Income (laundry) (2%) Effective Gross Income		\$3,820,680 -267,448 <u>+ 62,600</u> \$3,615,832		
Expenses Operating: Management (9%) R.E. Taxes (7%) Insurance (7%) Utilities (7%) Salaries (6%) Marketing (4%) Yard and Snow (2%) Sub-total (42%)	\$321,200 262,000 245,800 238,700 220,250 130,400 89,500 \$1,507,850			
Reserves for Replacements: Roof (4%) Parking (3%) Redecorating (3%) Appliances (3%) Sub-total (13%)	\$150,400 121,000 115,948 <u>102,400</u> \$489,748			
Total Expenses (55%)		\$1,997,598		
Net Operating Income (45%)		<u>\$1,618,234</u>		
Capitalization Rate 5.25% Indicated Market Value \$30,823,500				

Illustration 1

As you examine the statement, you'll notice a few terms we have not discussed. The **potential gross income** is defined as the maximum amount of income the property can produce if fully rented at market rent before any expenses are deducted. There will always be some amount to deduct from the potential gross income in the form of **vacancy** and **collection loss.** Even if the property is fully

leased, the appraiser must take some vacancy allowance to acknowledge tenant turn-over and inevitable vacancies. It is unrealistic not to allow for some vacancy. Collection loss is that amount deducted from the potential gross income for nonpayment of rent.

In addition to rent, a property may have other sources of income. This **miscellaneous income** can come from such sources as an on-site laundry facility, furniture rental, community room rentals, vending machines, and the like.

When an amount for vacancy and collection loss is subtracted, and an amount for miscellaneous income is added to the gross potential income, the result is the **effective gross income** of the property. Expenses are subtracted from, and expense ratios are calculated based upon, the effective gross income.

Expenses usually fall into two categories: **operating expenses** and **reserves for replacements**. Sometimes operating expenses may be further divided between variable and fixed expenses. Operating expenses are those legitimate expenses necessary to support the property's ability to produce income. The sample shows some of the more typical expenses incurred by an apartment building. Notice the calculation of the expense ratios mentioned earlier. As an example, the expense ratio for management is nine percent of the effective gross income (\$321,200/\$3,615,832). These actual ratios are compared to typical ratios to see if any expenses are out of the ordinary. If they are out-of-line and no adequate explanation can be identified, it is appropriate to substitute that category of expense with an amount that would be more normal as indicated by market research. This is an aspect of "re-constructing" the income/expense statement to more properly reflect a stable, normalized net operating income.

Reserves for replacements are a category of expenses that are designed to set aside funds for long lived items that periodically need to be replaced. The amount of the expense is based on the item's economic life and the estimated cost to replace it in the future. Let's say that appliances must be replaced every five years at an estimated cost of \$3,122 per unit. With 164 units, we need to accumulate \$512,000 over a five year period. Charging \$102,400 per year to the reserves for replacements expense allows us to set aside enough money to replace the appliances according to the five year schedule. It is always appropriate to set aside reserves for replacements, even though in practice a property may not have done so. This is another aspect to "re-constructing" the traditional income/expense statement.

Subtracting the total expenses from the effective gross income leaves us with the net operating income of the property. The NOI of the property is the "I" in the IRV formula that will be converted to an indication of value using a capitalization rate.

As mentioned earlier, we employ the direct capitalization of income to produce an estimate of value. The capitalization rates are determined by the analysis of sales of similar properties where the NOI is known. Capitalization rates vary between and within different categories of income-producing properties. Analysis

of the market is necessary to determine the proper rate to apply to the different properties. For example, a capitalization rate for a high quality office building in a prime location will be lower than a capitalization rate for a lower quality office in a less desirable location. With all other things remaining equal and no unusual externalities, capitalization rates for offices are generally less than rates for motels or shopping centers. It all harkens back to the level of return the buyers expect to receive on their investment in commercial real estate. One of their considerations is that the more risk involved with the property, the more return they require thereby raising the capitalization rate resulting in a lower valuation.

In our example, a market-derived capitalization rate for apartments of similar size and location indicate a direct capitalization rate of 5.25 percent. We now know the NOI and the cap rate and by following the IRV formula, we derive the value of Breakaway Northwest to be \$30,823,500 (\$1,618,234/0.0525).

The above discussion accurately represents the typical application of the income approach to valuation. However, determining valuations for ad-valorem purposes requires one significant modification to the process. Whereas in the above example we considered real estate taxes a legitimate expense, they are not expensed in ad-valorem appraisals. They are removed in our approach to account for the fact that the tax expense is directly determined by the very value we are trying to obtain. To avoid this circular situation whereby taxes affect value (lower NOI, if expensed) and value affects taxes, we remove the item from the NOI. Our tax-adjusted NOI will now be \$1,880,232 (\$1,618,234 + \$262,000). This is another aspect to reconstructing the income/expense statement illustrated earlier.

As a consequence of removing real estate taxes from the expenses and thereby increasing the NOI by a corresponding amount, we compensate by modifying the capitalization rate. The modification to the market cap rate allows us to remove real estate taxes from the net operating expenses and replace the loss by increasing the cap rate by the effective tax rate.

The cap rate we utilize for ad-valorem appraisals is a 'loaded' cap rate, meaning that it is comprised of both the market cap rate and the District's effective tax rate for apartments. Apartments are taxed at the residential tax rate. For this exercise the tax rate is \$0.85 per \$100 of assessed value, therefore the effective tax rate is 0.0085 (0.85/100). If the market cap rate is 5.25 percent and the effective tax rate is 0.85 percent, then our 'loaded' cap rate is 6.10 percent (0.0525+0.0085).

Based on the information we now have, we can estimate the market value of the subject apartment to be \$30,823,500 (\$1,880,232/0.061), the same as determined just a moment ago.

The above discussion has been presented as a review of the income approach to valuation, more specifically the direct capitalization technique. Included was an example of the valuation of an apartment building. In the next section, we'll again value the same apartment building but conduct the valuation from within

the District's CAMA system. Although the work flow may appear different, the underlying IRV formula should generate the same results.

Vision's® CAMA Income Approach to Value

In addition to the market-calibrated cost approach utilized by CAMA to value the residential property in the District, CAMA also has the capability to value commercial property using the more appropriate approach — the income capitalization approach. The discussion in this section will serve to illustrate the manner in which a commercial property, an apartment building, is valued based on the income approach.

To effectively value property, complete and accurate property characteristics must be known. Although the physical characteristics such as wall type, roof type, building style and the like are important, the most important information regarding commercial property subject to the income approach are characteristics of the property dealing with its ability to produce income. In an office building, for example, the gross building area or net leaseable area are important. In hotels and motels the significant measure is the number of rooms available. And in apartment buildings it would be the number and style of the units for rent.

We'll begin our appraisal of Breakaway Northwest by identifying the "mix" of units in the building. The table below represents this information.

The mix of units is as follows:

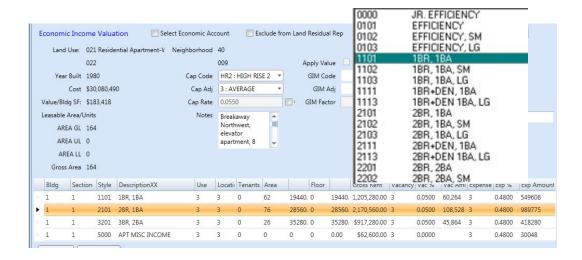
No. of Bedrooms	1 Bed	2 Bed	3 Bed
No. of Bathrooms	1 Bath	1 Bath	2 Bath
No. of Units	62	76	26

Table 1

From our previous discussion of the income approach, we know that there are four "key" areas having to do with the income approach to value:

- Gross Income (Rent)
- Vacancy & Expenses
- Net Operating Income
- Capitalization Rate

The illustration below highlights the location of these key areas on the data entry screen within CAMA.



Gross Rent

Recall we will be appraising the same apartment property from the example in the first section. Let's first turn our attention to the Gross Rent. We'll be entering information for each section, using one line for each *style* of apartments. By style, we mean the unit of comparison designated for apartment buildings – 1 bed-1 bath, 2 bed w/den-1 bath, 3 bed-2 bath, and the like.

Let's look at the first line of the table:

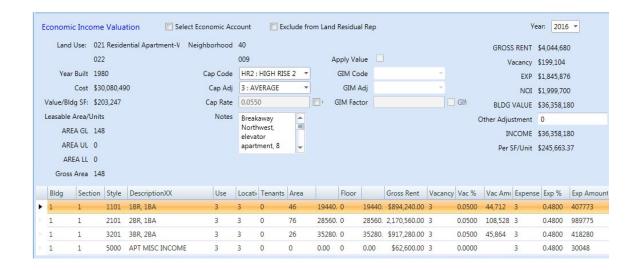


Our first line will account for the 1 bedroom-1 bath units in the complex. The style code "1101" is selected from a pick-list that describes the different styles available for apartments. Please refer to the illustration below for a partial list of Income Style for apartments.

There are sixty-two 1BR, 1BA units and that number is recorded in the "SF/Unit" column of the table. In addition to recording the style and number of units, the appraiser may choose to modify the Gross Rent by taking into consideration both the tenant desirability and the location of the apartment. The two columns labeled "Use" and "Loc" account for these adjustments, respectively. The adjustments are percentage increases or decreases to the Gross Income from the default value of "average." Both the "Use" and "Loc" allow for the same percent adjustment each, as shown in the illustration below.

Illustration 5





The amount of adjustment is based on the table below:

Rating	Description	Location	Use
1	POOR	0.80	0.80
2	FAIR	0.90	0.90
3	AVERAGE	1.00	1.00
4	GOOD	1.10	1.10
5	EXCELLENT	1.25	1.25
Α	AVERAGE	1.00	1.00
S	NON-MARKET	1.00	0.90

Table 2

In our example, we chose not to make any adjustments for location or desirability to any of the apartment units in this property.

The Base Rate shows the annual rent for each unit of the particular style "1101" – 1BR, 1BA. In this example the rent is \$1,620 per month or \$19,440 on an annual basis as shown in the base rate column. This value has been selected from a table in CAMA. The table has been calibrated based upon market analysis of current rents segmented by location and style, throughout the District. Below is an excerpt of a table that illustrates the rents for our particular property.

		OLD CITY #2	
Code	Description	Monthly Rent	
0000	JR. EFFICIENCY	1255	
0101	EFFICIENCY	1330	

0102	EFFICIENCY, SM	1255
0103	EFFICIENCY, LG	1465
1101	1BR, 1BA	1620
1102	1BR, 1BA, SM	1475
1103	1BR, 1BA, LG	1800
1111	1BR+DEN, 1BA	1885
1113	1BR+DEN 1BA, LG	2075
2101	2BR, 1BA	2380
2102	2BR, 1BA, SM	2145
2103	2BR, 1BA, LG	2610
2111	2BR+DEN, 1BA	2740
2113	2BR+DEN 1BA, LG	3010
2201	2BR, 2BA	2740
2202	2BR, 2BA, SM	2465
2203	2BR, 2BA, LG	3010
2211	2BR+DEN, 2BA	3285
2213	2BR+DEN 2BA, LG	3620
3101	3BR, 1BA	2550
3102	3BR, 1BA, SM	2290
3103	3BR, 1BA, LG	2805
3111	3BR+DEN, 1BA	2940
3113	3R+DEN 1BA, LG	3220
3201	3BR, 2BA	2940
3202	3BR, 2BA, SM	2635

Table 3

Notice that our subject property is located in the Old City #2 market. The District of Columbia is divided into nine separate markets for income modeling purposes. The market influences within Old City #2 are, for example, different from the influences within Southwest or Georgetown markets. Separate rent rate and vacancy and expense ratio schedules exist for each separate market.

As we continue with our example, we account for the other two styles of units in a similar manner. At this point, the gross rent has been calculated to be \$4,293,120. But, if you recall from the income and expense statement, the property generated an additional \$62,600 in non-rental income. We need to include this amount to determine to total gross income.

To account for the miscellaneous income, select "5000 APT MISC INCOME" as the style and enter the actual amount directly into the Gross Rent column. We want to be sure to set the "OV?" (override), column to "Yes." By doing so, we ensure that the amount does not get adjusted for vacancy and collection loss discussed in the next section. Typically, only rental income is subjected to vacancy and collection loss. See the illustration below:



Illustration 6

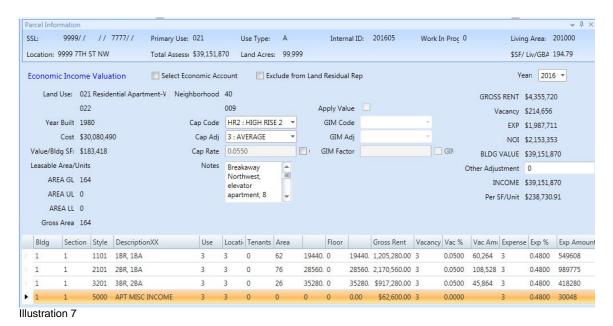
This concludes our discussion of the Gross Rent tab in the CAMA system. We have accounted for all of the rent attributable to the property and concluded that the Gross Rent is the sum of \$ 4,355,720, the same amount as shown on the income and expense sheet from section one. Next, we'll turn to the Vacancy & Expenses portion of the record.

Vacancy and Expenses

Our work in the Vacancy and Expenses will be similar to what we did in the Gross Income. However, in this table we'll account for four items:

- Vacancy amount
- EGI (Effective Gross Income) calculation
- Expense amount
- NOI (Net Operating Income) calculation

The value of the NOI calculated here will be the basis for the final valuation using the IRV formula, after selecting a rate. See below:

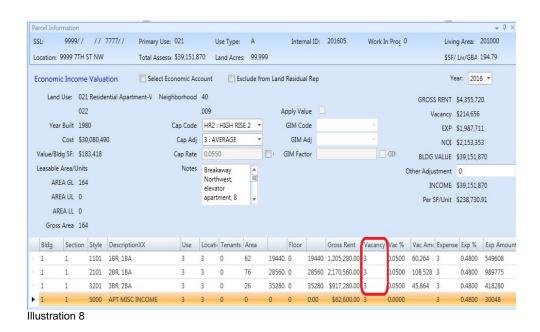


A Vacancy and Expenses line is automatically created for each style shown on the Gross Rent. The values are based on the market area of the property and are derived from market analysis. Recall that our apartments are located in the Old City #2 market. CAMA populates the Vac% column and the Exp% column with the market rates appropriate for Old City #2; in this case it would be based on this table:

			OLD CITY	
	GEORGETOWN	NORTHEAST	#2	SOUTHEAST
Vacancy Ratio	4%	7%	5%	8%
Expense Ratio	42%	60%	48%	60%

Table 4

We have inspected the property and concur that the vacancy rate should be five percent, to coincide with typical vacancies for properties in Old City #2.



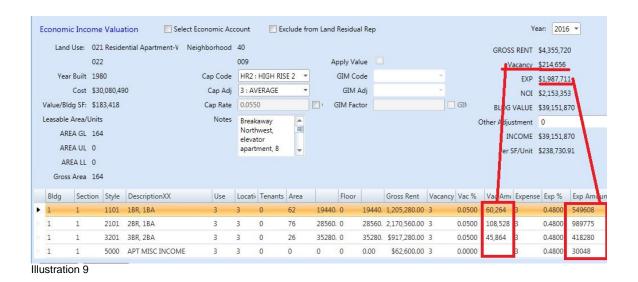
If, however, we found the property to have less than typical vacancy we could have selected "4 Good." Whereas the typical vacancy for the Old City #2 market area is 5 percent, had we selected "Good", the vacancy rate would have been modified by appropriate multiplier in the adjustment table. The adjusted amount would have been 2.5 percent (0.05 * 0.50). The amount of adjustment for both vacancy and expense are shown in the table below.

Rating	Description	Vacancy	Expense
1	POOR	2.00	1.25
2	FAIR	1.50	1.10
3	AVERAGE	1.00	1.00
4	GOOD	0.50	0.90
5	EXCELLENT	0.25	0.75
Α	AVERAGE	1.00	1.00
S	NON-MARKET	0.25	1.00

Table 5

.

The Expense % may be adjusted in a similar manner, but we'll leave it set to the typical percent associated with the Old City #2 market of forty-eight percent. By subtracting the Exp. Amount from the EGI, we get the NOI of the property. CAMA has calculated the NOI to be \$2,153,353, identical to our earlier income and expense report modified for real estate taxes discussed earlier.



We're almost finished. The last piece of the valuation process is the capitalization rate.

Capitalization Rate

Capitalization rates will vary across the District based on the class of property (office, retail, apartments, etc.) and its location (market area). Capitalization rates are assigned to apartments based on their market location and type of apartment complex. The District is divided into three submarkets. Each of these submarkets provides a separate cap rate for high-rise and low-rise apartments. Neighborhood 40/E, Old City II, is located in the Northwest market area and our subject is a high-rise type complex.

The assigned capitalization rate for high-rise apartments in the Northwest market area is 0.055 or 5.5 percent. Remember, this is the 'loaded' cap rate. See the illustration below.

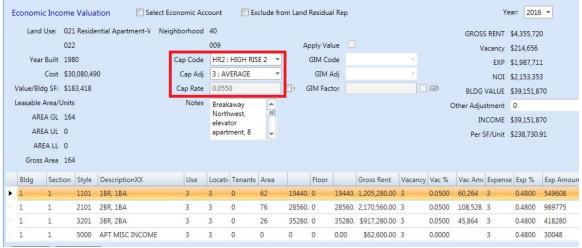
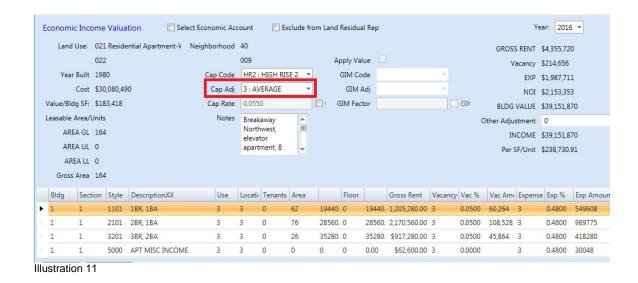


Illustration 10

Upon analysis of the property and its income and expenses, an adjustment to the cap rate is not warranted and therefore the cap rate adjustment is set to "Average". Had the property been located closer to the Mt. Vernon Metro station, there may have been a reason to adjust the cap rate down to reflect the property's good performance based on its proximity to the station. In that situation, instead of 'average', we would want to adjust the rate to "Good" thereby lowering the rate. This adjustment is accomplished by the Cap Adjustment dialog box. See below.



Had we agreed that the performance was "Good", our original cap rate of 5.5 percent would have been modified to 4.95 percent (0.061 * 0.90). Remember IRV

tells us that, all other things being equal, the lower the cap rate the higher the property value and vise versa.

Cap Rating	Description	Adjustment
0	VERY POOR	1.30
1	POOR	1.20
2 3 4 5	FAIR	1.10
3	AVERAGE	1.00
4	GOOD	0.90
5	EXCELLENT	0.80
Α	AVERAGE	1.00

Table 6

Valuation

We have almost come to the end of our example and exercise. One simple division remains. Knowing that the NOI is \$2,153,353 and that the overall direct capitalization rate is 0.055, we can calculate the estimated value of Breakaway Northwest to be \$39,151,870 (\$2,153,353/0.055). Again, this is identical to the amount estimated in the first section of the exercise. The final results are highlighted below.

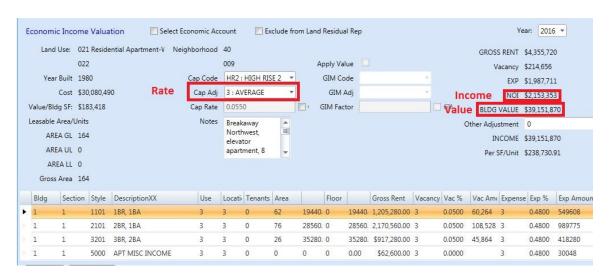


Illustration 12

Some Final Thoughts

We have introduced you to some of the most elementary aspects of property valuation using the District's Vision® CAMA system. We have developed the estimated market value of a fictitious apartment complex, utilizing the direct capitalization income approach to value. This guideline is merely a small window, a first step, in the complex field of mass appraisal. A CAMA system robust enough to appraise almost 200,000 different properties will necessarily be comprehensive and complex. Additionally, an initial valuation generated by CAMA is always subject to the review and approval of a qualified, professional appraiser before it becomes a final value. As you explore and utilize the program make certain that you fully understand the ramifications and results of your actions. Your supervisor and/or CAMA manager will always be available to assist you.

Guidelines for Non-Market Multifamily (Apartment) Assessment

Various affordable multi-family residential properties benefit from some public funding programs. The funding programs mostly impose restrictions that run with the land for a determined period in exchange for some restricted rent or other subsidy.

There are many categories of low-income multifamily housing with many or different complex capital financial structures, which makes its valuation a challenge. Examples of low-income (affordable) housing development includes, Section 202 housing, Section 221, Section 8 certificate and voucher program, Hope VI program, Low Income Housing Tax Credit (LIHTC) etc.

In simplifying the valuation/assessment process of low-income housing, and for OTR purposes, apartment units in low-income multifamily development under any kind of government program are referred to as "non-market" unit; denoted by "S: NON-MARKET" in Vision CAMA program under all adjustments categories except the capitalization rate.



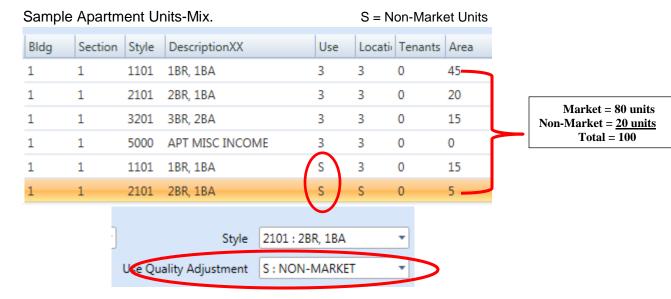
Valuation Methodology

Income approach is generally accepted as the most reliable valuation method of appraising low-income multifamily housing developments. The sales comparison approach is less applicable due to limited or total lack of truly comparable sales, because of different income characteristics and government restrictions imposed on these properties. Also, these developments are sometimes too old, to make conclusion of market value via cost approach reliable.

The objective of this guide line is to focus on estimating market value of "non-market" apartments using Vision CAMA income model for consistency and consideration to existing restrictions by the government program in the housing development.

When the unit-mix consists of market and non-market units – Use to populate the unit-mix in the income model table.





The income model automatically adjusts market rent when "S: NON-MARKET" is selected under Use Quality Adjustment.

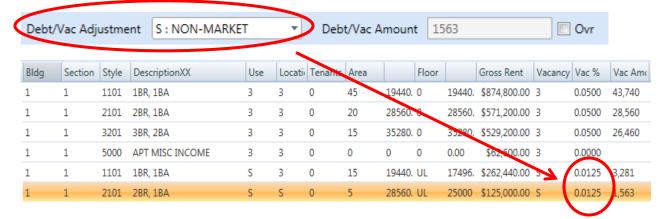


When the I&E report have the actual (received) rent for any non-market unit, check the box in front of Gross Rent and override it with the actual rent.

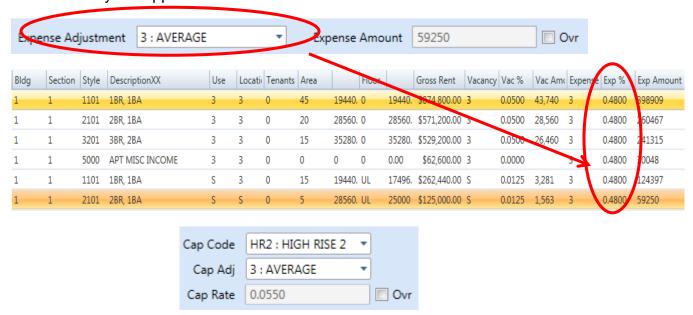




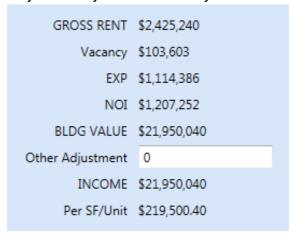
Select or apply non-market vacancy adjustment to all non-market units



Expenses and cap rate should be consistent for all the units except otherwise determined by the appraiser based on verifiable data.



Finally, check your analysis for accuracy and value conclusion.



APPENDIX:

Sample PRC

00		0000	77-		1		00400	-			Sale	s Information	n	1		Comn	nercial Data	Flemen	te				
SS		9999			interr	nal ID	20160	5	Sale Date	e (Q/U	V/I	Sale Price			0011111	TICICIAI Date	Licinon	13				
	cation		99 71	H ST NW					01-01-200		Q	ı	41,472	2,000									2016
_	rrent C		NOD:	TUMEOT ADT	-0.1810				01-01-200		Q	!	39,000	0,000	Exterio	r Finish	BR	Brick					
			NOR	THWEST APT	SINC				01-01-200 01-01-200		Q U	- i - I	35,000	0,000									VALUATION
99	99 7TI	H ST							01-01-200		Q	- i -	30,000									Wash	ington, DC
																						2/27/2015	5 10:40:37 AM
\//	ASHIN	IGTON	ı	DC 200	01-999				Vaar Duilt				4	000			9.0	1.6421					
		al Own		200	01 000				Year Built					980			0.0	1.0421					
710	antionic	21 0 111	010.						Total Appra	aised F			36,358,										
		02002	hlo Ai	rea Summary		1	Can	Rate	1		E	Income	INCOME VAL	UATIO		come Value		1				Notes	
0			DIC A	•	4.40	C		Nate	LIDO	<u> </u>			4.044.000				20 250 400	Brooks	way N	lorthw		evator apartm	ent 8 story
	ound L				148	_	Code				Incon		4,044,680			! .	36,358,180						NW. Recently
Lov	ver lev	/el			0	Cap	Adjust		3	Vacar	ncy All	owance	199,104	Other .	Adjust		0	remode	eled. C	Close t	o Mt. \	ernon Sq. M	etro.
Up	per Le	vel			0	Сар	Rate		0.0550	Exper	nse All	owance	1,845,876					1				•	
						R	Rent ID	T	NBHD					Total I	ncome	Value	36,358,180						
Tot	al I ea	seable	Ares	a 148			009			Net In	come		4 000 700		per SF/		245,663						
-01	ui Lua	T	, , .i Oc	. 170	1		T		70		1			Taide	70. Ui /		Z-70,000	1					
#	Bldg	Sect		Style	Adj	осс	SF/Unit	Flr	Base	Use	Loc	Rent	Gross Rent	Vac	Vac	Vacancy	EG	1	EXP	EXP	EXP	Expenses	NOI
#	#	#		Style	Table	000	31 /01111	Lev	Rate	Adj	Adj	SF/Unit	Oloss Rein	Vac	%	Allowance		1	LAI	%	/SF	Lxperises	NOI
1	1	1	110	1BR, 1BA	1	0	46	0	19440.00	3	3	19440.00	894,240	3	0.05	44,712		849,528	3	0.48		407,773	441,755
2	1	1	210	2BR, 1BA	1	0	76	0	28560.00	3	3	28560.00	2,170,560	3	0.05	108,528	2,	062,032	3	0.48		989,775	1,072,257
3	1	1	320	3BR, 2BA	1	0	26		35280.00	3	3	35280.00	917,280	3	0.05	45,864		871,416	3	0.48		418,280	453,136
4	1	1	500	APT MISC I	6	0	0	0	0.00	3	3	0.00	62,600	3	0.00	0		62,600	3	0.48		30,048	32,552
																	1						
																	1						
																	1						
																	1						
							4.40					<u> </u>	4.044.600			100 104	2	045 E76				1 0/5 070	1 000 700
							148						4,044,680			199,104	<u> </u>	845,576				1,845,876	1,999,700

SSL		000	99 7	7777		Internal	ID 201	1605				Sales	Information	on			Co	ommercial Dat	a Elements				
				TH ST NW		ıı ileli idi	עון 201	1000		Sale Date Q/U			V/I Sale Price										
				IHSINW						01-01-2		Q	!		41,4	72,000	ata a Etata b	55	Details		20	16	
		Owne		DTI IVA/COT	T A D T O	INIC			- '	01-01-2 01-01-2	2005	Q Q			39,0	000,000 Exte	HIOI FINISN	BK	Brick				
BR	EAK	AWA	Y NC	RTHWES1	IAPIS	INC				01-01-2		U	:		35,0	0					INCOME V		ON
999	99 71	TH ST	Γ							01-01-2		Q	i l		30.0	000,000					Washin	gton, DC	
															00,0	.00,000					2/27/2015	10:40:37 AN	1
																					2,2.,20.0		•
		NGT		DC		2000	1-9999		Υ	ear Bui	lt					1980		9.0	1.6421				
Add	ditior	nal O	wners	3:					Α	ppraise	ed Value				36,35	8,180							
										<u> </u>			CTUAL	NCOM		UATION							
		Ca	ap Ra	ate				Inco	me							Income Va	alue				se Breakdown		
Car	Cod	40			G	ross Ind	come						Incor	ne Valu	ie:				Heat, Maintena	nce, Acc	ounting, Electic	, Insurance	,
Cap	Coc	J C					Allowance							ss Land					Management, V	Vater, Tra	ash Removal, F	Reserves,	
Cor	۸ ما:						Allowance						Exce	SS Land	J.				Sewer, Snow R	emoval,	Other		
Cap	Adj	ust				ther Inc																	
0 -	D - 1	_											Total	Income	e Value	e:							
Cap	Rat	е			N	et Incor	ne						Value	e Per S	F/Unit								
					'		-						Value		. , 01111.								
	ייום	C							1	11	D 1			1/	F		17-1			Lacia		1	
#	#	Sec #		Style	Adj Table	OCC	SF/Unit	Flr Lev	Loc Adj	Use Adj	Rent SF/Uni		ss Rent	Vac Adj	Exp Adj	Other Incon	me Val Code		Notes	Lease Type	Tenant	Lease Begin	Yrs
	#	#			Table	, <u> </u>		LEV	Auj	Auj	31/011			Auj	Auj		Code			Type		begin	
		L	l				0	1	1				^)	<u> </u>								1
								'						<u>' l</u>									

2016 CAMA Residential Construction Valuation Guideline -- RPAD

USEC	ODE		Exter	ior Finish (Add to Bas	e Rate)		Enclosed Porch	\$41.25/sf
			0	Default			nclosed Porch	\$46.75/sf
(Select	s Base Rate)		1	Plywood			closed Porch	\$55.00/sf
Νo.	Description	Value	2	Hardboard Lap		Deck		\$27.50/sf
			3	Metal Siding		Patio		\$ 8.25/sf
011	Row	\$133.84	4	Vinyl Siding				
012	Detached	\$157.85	5	Stucco		Grade (Multiplies Base, A	dd & Flat)
012	Semi-Detached	\$133.66	6	Wood Siding		0	Default	,
		•	7	Shingle		1	Low Quality	0.50
015	Mixed Use	\$133.84	8	SPlaster		2	Fair Quality	0.75
019	Miscellaneous	\$133.84	9	Rustic Log		3		1.00
023	Small Apt. Bldg.	\$105.55		J	#0.05		Average Quality	
024	Conversion	\$136.19	10	Brick Veneer	\$3.95	4	Above Average C	
			11	Stone Veneer	\$9.38	5	Good Quality	1.19
			12	Concrete Block		6	Very Good Quali	
00116			13	Stucco Block		7	Excellent Quality	
	STRUCTION DETA		14	Common Brick	\$3.95	8	Superior Quality	1.66
No.	Description	Value	15	Face Brick	\$3.95	9	Extraordinary – A	1.92
			16	Adobe		10	Extraordinary – E	3 2.15
Style	(Descriptive)		17	Stone	\$9.38	11	Extraordinary – C	2.50
1	1 Story		18	Concrete	\$3.95	12	Extraordinary - D	
2	1.5 Story Unfin		19	Aluminum	*		,	
3	1.5 Story Fin		20	Brick/Stone	\$6.67	Interior	Condition (Multin	lies Base, Add & Flat)
4	2 Story		21	Brick/Stucco	\$1.98	0	Typical	2000, Add & 1 lat)
5	2.5 Story Unfin		22	Brick/Siding	\$1.98	1	Poor	.766
				<u> </u>				
6	2.5 Story Fin		23	Stone/Stucco	\$4.69	2	Fair	.819
7	3 Story		24	Stone/Siding	\$4.69	3	Average	1.000
8	3.5 Story Unfin					4	Good	1.091
9	3.5 Story Fin			Type (Add to Base Ra	te)	5	Very Good	1.179
10	4 Story		0	No Data		6	Excellent	1.239
11	4.5 Story Unfin		1	Forced Air				
12	4.5 Story Fin		2	Air-Oil	\$0.55	Exterio	r Condition (Multip	lies Base, Add & Flat)
13	Bi-Level		3	Wall Furnace	-\$1.27	0	Default ` .	,
14	Split Level		4	Electric Rad	-\$0.29	1	Poor	.766
15	Split Foyer		5	Elec Base Brd	-\$0.20	2	Fair	.819
10	opiit i oyoi		6	Water Base Brd	\$1.42	3	Average	1.000
Founda	ation (Descriptive)		7		φ1.42	4	•	
				Warm Cool			Good	1.091
0	No Data		8	Ht Pump		5	Very Good	1.179
4	Pier		9	Evp Cool		6	Excellent	1.239
5	Wood		10	Air Exchng				
6	Concrete		11	Gravity Furnace		Overall	Condition (Multiple	ies Base, Add & Flat)
			12	Ind Unit		0	Default	
View	(Descriptive)		13	Hot Water Rad		1	Poor	.766
0	Typical					2	Fair	.819
1	Poor		AC T	ype (Add to Base Rate	4)	3	Average	1.000
2	Fair		0	Default	,	4	Good	1.091
3	Average		Ň	No		5	Very Good	1.179
4	Good		Ϋ́	Yes	\$1.80	6	Excellent	1.239
5	Very Good		1	165	φ1.00	U	LXCEIIEIIL	1.239
-	Typellent		- 1	Cavarina (Add to Dag	na Data)	Dl	al Tima (Multiplian	Dana Add 9 Flat)
6	Excellent			Covering (Add to Bas			,	Base, Add & Flat)
			0	Default	\$2.50	0	Default	
	g Type (Descriptive)	1	Resilient	\$2.63	1	Unknown	
0	Default		2	Carpet	\$2.17	2	Gut Rehab	1.44
1	Single		3	Wood Floor	\$6.06	3	Major Renov	1.26
2	Multi		4	Ceramic Tile	\$8.53	4	Remodel	1.10
6	Row End	\$2.50	5	Terrazzo	\$8.30	5	Addition	
7	Row Inside	*	6	Hardwood	\$7.17	6	Cosmetic	1.02
8	Semi-Detached		7	Parquet	\$8.15	~		
J	John Doladrica		8	Vinyl Comp	\$1.64	The offe	act of this multiplier	diminishes at a rate of
Poof	(Add to Boss Bat	۵)						
Roof	(Add to Base Rate	c)	9	Vinyl Sheet	\$2.86	5% per	year based on the I	kerriouer Year.
0	Typical		10	Lt Concrete	\$0.75			
1	Comp Shingle		11	Hardwood/Carp	\$4.67			
2	Built Up		_					
3	Shingle	\$0.68		Init Adjustment (Flat R				
4	Shake	\$0.79	Full B	Bath (over 1)	\$12,500			
5	Metal-Pre	\$0.50	Half E	Bath	\$ 8,125			
6	Metal Sms	\$0.50	Firep		\$ 8,000			
7	Metal-Cpr	\$0.50	Kitch		\$11,500			
8	Composition Roll	-\$0.43		ned Basement (Basic)	\$20.00/sf			
9	Concrete Tile	\$1.88		ned Basement (Partition				
10					· :			
	Clay Tile	\$2.93 \$2.86		ment Garage	\$45.00/sf			
11	Slate	\$2.86	Carpo		\$33.00/sf			
12	Concrete	\$1.88	Stoop		\$22.00/sf			
13	Neoprene	\$0.00		Porch	\$22.00/sf			
15	Wood- FS	\$0.68	Cove	red Open Porch	\$38.50/sf			

2016 CAMA Residential Construction Valuation Guideline -- RPAD

DEPR	DEPRECIATION DETAIL							
No.	Description	Value						
Grade 0 1	(Adjust EYB) Default Low Quality	20%						
2 3 4	Fair Quality Average Quality Above Average	10% -05%						
5 6 7 8 9 10 11	Good Quality Very Good Quality Excellent Quality Superior Quality Extraordinary – A Extraordinary – B Extraordinary – C Extraordinary – D	-10% -15% -25% -35% -45% -50% -50%						
Bath Sty 0 1 2 3 4	rle (Adjust EYB) Default No Remodeling Semi-Modern Modern Luxury	- 05% - 10% - 20%						
Kitchen 0 1 2 3 4	Style (Adjust EYB) Default No Remodeling Semi-Modern Modern Luxury	- 10% - 20% - 40%						

Building RCN = [(Base Rate + \sum ABRV _n) * Effective Area * Size Adjustment + \sum AFRV _n] * (MV ₀ * MV ₂ * * MV _N)
Where:
RCN = Replacement Cost New
Base Rate = \$ rate based on use and style
ABRV = Additive Base Rate Variables
Effective Area = Adjusted SF area of
improvement
Size Adjustment = Adjustment factor for
deviation from base size
AFRV = Additive Flat Rate Variables
MV = Multiplicative Variables

Depreciation Table							
Base Year 2015							
Effective Age of Building	% Depr.	% Good	Effective Year Built				
0	0	100	2015				
1	1	99	2014				
2	2	98	2013				
3	2	98	2012				
4	3	97	2011				
5	3	97	2010				
6	4	96	2009				
7	4	96	2008				
8	4	96	2007				
9	4	96	2006				
10	5	95	2005				
11	5	95	2004				
12	5	95	2003				
13	5	95	2002				
14	6	94	2001				
15	6	94	2000				
16	6	94	1999				
17	6	94	1998				
18	6	94	1997				
19	7	93	1996				
20		93	1995				
21	7	93	1994				
22	7	93	1993				
23	7	93	1992				
24	8	92	1991				
25	8	92	1990				
26	8	92	1989				
27	8	92	1988				
28	8	92	1987				
29	9	91	1986				
30	9	91	1985				
31	9	91	1984				
32	9	91	1983				
33	9	91	1982				
34	9	91	1981				
35	10	90	1980				
36	10	90	1979				
37	10	90	1978				
38	10	90	1977				
39	10	90	1976				
40	10	90	1975				
41	11	89	1974				
42	11	89	1973				
43	11	89	1973				
44	11	89	1972				
45	11	89	1971				
45	11	09	1970				

46	11	89	1969
47	12	88	1968
48	12	88	1967
49	12	88	1966
50	12	88	1965
51	12	88	1964
52	12	88	1963
53	12	88	1962
54	13	87	1961
55	13	87	1960
56	13	87	1959
57	13	87	1958
58	13	87	1957
59	13	87	1956
60	14	86	1955
61	14	86	1954
62	14	86	1953
63	14	86	1952
64	14	86	1951
65	14	86	1950
70	15	85	1945
75	16	84	1940

Outbuildings/Extra Features 2016 Commercial

OBXF

Code	Description	Sub	Sub Description	2015 Rate
HVAC	(HVAC)Heating	601	Electric	\$4.59
HVAC	(HVAC)Heating	603	Forced Air	\$4.90
HVAC	(HVAC)Heating	604	Hot Water	\$8.75
HVAC	(HVAC)Heating	605	Hw Radiant	\$8.75
HVAC	(HVAC)Heating	606	Space Heater	\$2.11
HVAC	(HVAC)Heating	607	Steam	\$7.51
HVAC	(HVAC)Heating	610	Wall Furn	\$2.30
HVAC	(HVAC)Heating	611	Pckg Unit	\$9.19
HVAC	(HVAC)Heating	612	W/C Air	\$12.54
HVAC	(HVAC)Heating	613	H/C Water	\$20.36
HVAC	(HVAC)Heating	614	Heat Pump	\$10.24
HVAC	(HVAC)Heating	615	Floor Furn	\$2.30
HVAC	(HVAC)Heating	616	Ind Thru-Wall Ht Pmp	\$4.84
HVAC	(HVAC)Heating	617	Cmplt HVAC	\$9.19
HVAC	(HVAC)Heating	618	Evap Cooling	\$20.36
HVAC	(HVAC)Heating	619	Refridg Cool	\$8.81
HVAC	(HVAC)Heating	621	Rad Space Ht	\$2.11
HVAC	(HVAC)Heating	626	Cntrl Atmosphere	\$9.00
HVAC	(HVAC)Heating	649	No HVAC	\$0.00
SPRK	Sprinklers	652	Sprinklers	\$4.90
SPRK	Sprinklers	681	Sprinklers	\$4.90
SPRK	Sprinklers	682	Dry	\$6.27
SPRK	Sprinklers	683	Wet	\$4.90
ELEV	Elevators	650	Elevators	\$67,030.00
ELEV	Elevators	651		\$67,030.00
ELEV	Elevators	652	Passenger Power Freight	\$67,030.00
ELEV		653	<u>_</u>	\$67,030.00
	Elevators	003	Freight Mnl	ΙΦ 07,U3U.UU

Base Year 2015

Base Year 2015	
Age of Building	Effective Year Built
1	2013
2	2013
3	2012
4	2011
5	2010
6	2009
7	2008
8	2007
9	2006 2005
11	2004
12	2003
13	2002
14	2001
15	2000
16	1999
17	1998
18	1997
19	1996
20	1995
21	1994 1993
22	1993
23	1992
25	1990
26	1989
27	1988
28	1987
29	1986
30	1985
31	1984
32	1983
33	1982
34 35	1981 1980
36	1979
37	1978
38	1977
39	1976
40	1975
41	1974
42	1973
43 44	1972
44	1971 1970
45	1969
47	1968
48	1967
49	1966
50	1965
51	1964
52	1963
53	1962
54 55	1961
55 56	1960 1959
57	1959
58	1957
59	1956
60	1955
61	1954
62	1953
63	1952
64	1951
65	1950
70	1949

70 Year Economic Life	
Percent of	Percent
Depreciation	Good
0	100 100
0	100
0	100
1	99
1	99
1	99
1	99
1	99
2	98
2	98
2	98
2	98
2	98
3	97 97
3	97
4	96
4	96
4	96
5	95
5	95
6	94
6	94
7	93
7	93
8	92
9	91
9 10	91
10	90 89
12	88
13	87
14	86
15	85
16	84
17	83
18	82
19	81
20	80
21	79
23	77
25 26	75 74
28	72
29	71
31	69
32	68
34	66
36	64
38	62
40	60
42	58
44	56
46 48	54 52
50	50
50 52	48
52 54	46
56	44
57	43
59	41
61	39
63	37
64	36
65	35

71

60 Year Economic L	
Percent of	Percent
Depreciation	Good
0	100
0	100 100
1	99
1	99
1	99
1	99
1	99
2	98
2	98
2	98
2	98
3	97 97
3	97
4	96
4	96
5	95
5	95
6	94
6	94
7	93
8	92
9	91 91
10	90
11	89
13	87
14	86
15	85
16	84
17	83
18	82
20 21	80 79
23	79
25	75
26	74
28	72
31	69
32	68
34	66
36	64
38 40	62 60
40	56
46	54
48	52
50	50
52	48
54	46
57	43
59	41
61 63	39 37
64	36
65	35
67	33
69	31
70	30
71	29

50 Year Economic L	ifo
Percent of	Percent
Depreciation	Good
0	100
0	100
0	100
1	99
1	99
1	99
1	99
2	98
2	98
2	98
3	97
3	97
4	96
4	96
5	95
5	95
6	94
7	93
7	93
9	91
9	91
10	90
12	88
13	87
15	85
16	84
17	83
19	81
20	80
23	77
25	75
26	74
29	71
31	69
34	66
36	64
38	62
42	58
44	56
48	52
50	50
52	48
56	44
57	43
61	39
63	37
64	36
66	34
67	33
70	30
71	29

29

2016 Cost Occupancy / Use Codes

Occ.	Land		Bldg.	Bldg.	Cost	Cost	Size Adj.	Standard	Standard	Wall Height	Run
Code		Description	Model			Adjustment	Table	Size	Wall Height	Adjustment	Cost?
001	С	Non-conform residential-single	94	001	RH1		S90	2000	8	0.015	
002	R	Non-conform residential-multi-	03	002	AP1		S90	1500	8	0.02	
003	R	Residential Transient	05	003	RH1		S90	8000	10	0.015	
004	С	Commercial-Retail (NC)	94	004	RT1		S90	5000	12	0.01	1
005	C	Commercial-Office (NC)	94	005	OF1		S90	6000	10	0.015	
006	С	Commercial-Spec Purpose (NC)	94	006	GS1		S90	6000	8	0.015	
007	C	Industrial (NC)	96	007	MN2		S90	20000	8	0.015	
800	C	Special Purpose (NC)	94	008	GS1	1	S90	8000	8	0.015	
011	R	Residential Row Single Family	01	011	R11		SG3	1800	8	0.015	
012	R	Residential Detached Single Fa	01	012	R12		SG3	1800	8	0.015	
013	R	Residential-Semi-Detached Sing	01	013	R13		SG3	1800	8	0.015	
014	R	Residential Garage	00	014			S90	10000	0	0.015	1
015	R	Residential-Mixed Use	01	015	R15		SG3	1800	8	0.02	
016	R	Residential-Condo-Horizontal	05	016	CND		S90	1000	8	0.015	
017	R	Residential-Condo-Vertical	05	017	CON		CDU	800	8	0.015	
018	R	Residential-Condo-Parking	00	018			S90	10000	8	0.015	
019	R	Residential-Single Family-Misc	01	019	R19		SG3	1800	8	0.015	
021	С	Residential Apartment-Walk-Up	94	021	AP1		S90	10000	8	0.02	1
022	C	Residential-Apartment-Elevator	94	022	AP2		S90	50000	8	0.015	
023	R	Res Flats-Less than 5 Units	03	023	R23		SG4	3000	8	0.015	
024	R	Res-Coversions less than 5 Uni	02	024	R24		SG3	1800	8	0.015	
025	С	Res-Coversions 5 Units	94	025	MRC		S90	10000	8	0.02	
026	C	Res-Cooperative-Horizo	94	026	AP2		S90	10000	8	0.015	
027	C	Res-Cooperative-Verical	94	027	AP2		S90	50000	8	0.015	
028	C	Res-Conversions-mr than 5	94	028	MRC		S90	20000	8	0.015	
029	C	Res-Multi-family Misc	94	029	AP2		S90	50000	8	0.015	
031	С	Hotel-Small	94	031	HT1		S90	20000	9	0.01	1
032	C	Hotel-Large	94	032	HT2		S90	135000	9	0.01	1
033	С	Motel	94	033	HT1		S90	20000	9	0.01	1
034	С	Private Club	94	034	GS1	1	S90	4000	14	0.015	
035	С	Tourist Homes	94	035	RH1		S90	8000	10	0.015	
036	С	Dormitory	94	036	RH2		S90	8000	8	0.015	
037	C	Inn	94	037	MRC		S90	12000	10	0.01	1
038	C	Fraternity/Sorority House	94	038	RH2		S90	8000	10	0.015	
039	С	Res-Transient Misc	94	039	RH1		S90	5000	8	0.015	
041	С	Store-Small 1 Story	94	041	RT1		S90	10000	14	0.01	1
042	С	Store-Misc	94	042	RT1		S90	4000	14	0.01	1
043	С	Store-Department	94	043	RT3		S90	40000	14	0.01	1
044	С	Store-Shopping Center/Mall	94	044	RT2		S90	60000	18	0.01	1
045	С	Store-Restaurant	94	045	RS1		S90	5000	12	0.01	1
046	С	Store-Barber/Beauty Shop	94	046	RT4		S90	4000	14	0.01	1
047	С	Store-Super Market	94	047	RT2	0.88		22000	14	0.01	1
048	С	Commer-Retail-Condo	94	048	RT1		S90	3000	14	0.01	
049	С	Commer-Retail-Misc	94	049	RT1		S90	4000	14	0.01	
051	С	Commercial-Office-Small	94	051	OF1		S90	6000	10	0.015	
052	С	Commercial-Office-Large	94	052	OF3		S90	60000	10	0.015	
053	С	Commercial-Planned-Development		053	OF3		S90	300000	10	0.015	
056	С	Office-Condo-Horizontal	94	056	OF1		S90	3000	10	0.015	
057	С	Office-Condo-Vertical	94	057	OF1		S90	3000	10	0.015	
058	С	Commercial-Office-Condo	94	058	OF3		S90	6000	10	0.015	
059	С	Commercial-Office-Misc	94	059	OF2		S90	6000	10	0.015	
061	С	Commercial-Banks_Financial Svc	94	061	BN1		S90	3000	14	0.015	
062	С	Commercial-Garage_ Vehicle Sal	94	062	PK1		S90	5000	8	0.015	
063	С	Commercial-Parking Garage	94	063	PK2		S90	55000	8	0.015	
064	С	Parking Lot Special Purpose	00	064	1 112		S90	25000	0	0.013	
065	С	Vehicle Svc Station_ Vintage	94	065	SV1		S90	5000	12	0.01	
066	С	Theaters_ Entertainment	94	066	GS2		S90	20000	22	0.01	
067	С	Commercial-Restaurant	94	067	RS1		S90	5000	12	0.01	
068	С	Commercial-Restaurant-Fast Foo	94	068	RS2		S90	3000	12	0.01	
1/1/1/1			94	069	RT1		S90	10000	14	0.01	
069	С	Commercial-Specific Purpose									

2016 Cost Occupancy / Use Codes

Occ.	Land		Bldg.	Bldg.	Cost	Cost	Size Adj.	Standard	Standard	Wall Height	Run
Code	Class	Description	Model		Group	Adjustment	Table	Size	Wall Height	Adjustment	Cost?
072	С	Industrial-Heavy Manufacturing	94	072	MN2	1	S90	30000	12	0.015	1
073	С	Industrial-Light	94	073	MN1	1	S90	22000	12	0.015	1
074	С	Industrial-Warehouse-1-story	94	074	WH2	1	S90	25000	16	0.01	1
075	С	Industrial-Warehouse-Multistor	94	075	WH1	1	S90	20000	16	0.01	1
076	С	Industrial-Truck Teminal	94	076	WH3		S90	20000	16	0.01	1
078	С	Warehouse-Condo	94	078	WH2	1	S90	5000	16	0.01	1
079	С	Industrial -Misc	94	079	MN1	1	S90	22000	12	0.015	1
081	С	Religious	94	081	PS1	1	S90	15000	24	0.01	1
082	С	Medical	94	082	MC1	1	S90	15000	10	0.01	1
083	С	Educational	94	083	ED1	1	S90	80000	12	0.01	1
084	С	Public Service	94	084	PS1	1	S90	12000	12	0.01	1
085	С	Embassy_ Chancery	94	085	PS2	1	S90	12000	12	0.01	1
086	С	Museum_ Library_ Gallery	94	086	GS3	1	S90	14000	14	0.01	1
087	С	Recreational	94	087	RB1	1	S90	20000	24	0.01	1
088	С	Healthcare Facility	94	088	MC2		S90	8000	12	0.01	1
089	С	Special Purpose	94	089	GS2	1	S90	2000	8	0.01	1
091	R	Vacant	00	091		1	S90		0	0.015	1
092	R	Vacant-with permit	00	092			S90		0		1
093	R	Vacant-zoning limits	00	093		1			0		1
094	R	Vacant-false abutting	00	094		1			0		1
095	R	Vacant-Commercial Use	00	095		1			0		1
096	R	Vacant-Unimproved Parking	00	096		1			0		1
116	R	Condo-Horizontal Combined	05	116	CND	1	S90	3000	8	0.015	
117	R	Condo-Vertictal Combined	05	117	CND	1	S90	2000	8	0.015	
126	С	Coop-Horizontal-Mixed Use	94	126	AP2		S90	10000	8	0.015	1
127	C	Coop-Vertical-Mixed Use	94	127	AP2		S90	10000	8	0.015	
165	С	Vehicle Svc Station_ Kiosk	94	165	SS1		S90	5000	14	0.01	1
189	C	Special Purpose-Memorial	00	189			S90	10000	0	0.01	1
191	С	Vacant	00	191		1					1
192	C	Vacant-with permit	00	192		1					1
	С	Vacant-zoning limits	00	193		1					1
194	C	Vacant-false abutting	00	194		1					1
195	C	Vacant-Commercial Use	00	195		1					1
196	С	Vacant-Unimproved Parking	00	196		1					1
214	C	Garage-Multi-family	00	214		-	S90	10000	0	0.015	
216	C	Condo-Investment-Horizontal	94	216	CND		S90	10000	8	0.015	
217	C	Condo-Investment-Vertical	94	217	CND		S90	50000	8	0.015	
265	C	Vehicle Svc Station_ Kiosk	94	265	SS1		S90	5000	12	0.01	1
316	R	Condo-Duplex	05	316	CND		S90	5000	8	0.015	
365	C	Vehicle Svc Station_ Market	94	365	SS2		S90	5000	12	0.01	1
417	R	Condo-Vertical-Parking-Unid	00	417		1		2000	0	3.01	1
465	C	Vehicle Svc Station_ Market	94	465	SS2		S90	5000	14	0.01	1
516	R	Condo-Detached	01	516	SIN		S90	2000	8	0.015	



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Use Codes

Code Description

001 Residential-Single Family (NC)

002 Residential-Multi-Family (NC)

003 Residential-Transient (NC)

004 Commercial-Retail (NC)

005 Commercial-Office (NC)

006 Commercial-Specific Purpose (NC)

007 Industrial (NC)

008 Special Purpose (NC)

011 Residential-Row-Single-Family

012 Residential-Detached-Single-Fa

013 Residential-Semi-Detached-Sing

014 Residential-Garage

015 Residential-Mixed Use

016 Residential-Condo-Horizontal

017 Residential-Condo-Vertical

018 Residential-Condo-Garage

019 Residential-Single-Family-Misc

021 Residential-Apartment-Walk-Up

022 Residential-Apartment-Elevator

023 Residential Flats-Less than 5

024 Residential-Conversions-Less t

025 Residential-Conversion-5 Units

026 Residential-Cooperative-Horizontal

027 Residential-Cooperative-Vertical

029 Residential-Multifamily, Misc

031 Hotel-Small

Long Description

- (CLASS 1): Single-family residential property which normally would receive a use code, 11-19, 23-24 but has non-conforming use. (Assigned to Commercial)
- (CLASS 1): Multi-family residential property which normally would receive a use code, 21-22 or 25-29, but has a non-conforming use. (Assigned to Residential)
- (CLASS 1): Transient residential property which normally would receive a use code, 31-39, but has a non-conforming use. (Assigned to Residential)
- (CLASS 2): Retail commercial property which normally would receive a use code, 41-49, but has non-conforming use. (Assigned to Residential)
- (CLASS 2): Commercial office property which normally would receive a use code, 51-53,57-59, but has non-conforming use. (Assigned to Residential)
- (CLASS 2): Commercial property which normally would receive a specific purpose use code, 61-69, but has non-conforming use. (Assigned to Residential)
- (CLASS 2): Industrial property which normally would receive a use code, 71-79, but has non-conforming use. (Assigned to Residential)
- (CLASS 2): Special purpose property which normally would receive a use code, 81-89, but has non-conforming use. (Assigned to Residential)
- (CLASS 1): Single-family dwelling with 2 walls built as common walls with another structure, 2 exposed walls; primarily used as place of abode.
- (CLASS 1): Free-standing dwelling with open space around it and in all exterior walls; primarily used as abode.
- (CLASS 1): Structure with 1 dwelling place, 1 wall built as common wall with another structure, 3 exposed walls; primarily used as abode.
- (CLASS 1): Structure used primarily as accessory to single-family residence; no living quarters; on an individual lot. Garages, pools, tennis courts, pads, etc.
- (CLASS 1 or 2): Single-family property with commercial (usually office) space in part of house. If use is mostly single-family, lot may be eligible for a Homestead Deduction. Mixed-use eligible.
- (CLASS 1): Enclosed space of 1 or more rooms, occupying all or part of 1 or more floors; entrance no higher than 3 floors; single-family use; may/may not have parking, laundry, patio, etc.
- (CLASS 1): Enclosed space of 1 or more rooms, occupying all/part of 1 or more floors; in structure with elevator; more than 3 floors. Original primary use single-family. May have parking, laundry, patio, etc.
- (CLASS 1): Specific space, enclosed or not, for vehicle parking or storage; use is accessory to single-family residential; no living quarters; individually located to be freely exchanged independently of another unit.
- (CLASS 1): All other residential-single family uses not otherwise coded.
- (CLASS 1): Structure of 6 or more units; 1 owner; owner's motivation is to earn net investment income; no units higher than 3rd floor; no elevator; may have accessory uses.
- (CLASS 1): Structure with 12 or more units; 1 owner; elevator, more than 3 floors; may have accessory uses (parking, laundry, etc.). Owner's motivation is investment income.
- (CLASS 1): Structure with more than 1 single family unit, less than 5; usually self-contained, under 1 roof; few accessory uses; in some cases, owner occupies 1 unit; built for this use.
- (CLASS 1): Structure with more than 1 single-family unit, but less than 5; usually self-contained, under 1 roof; few accessory uses; 1 unit may be owner-occupied; original primary use not multi-family.
- (CLASS 1): Structure with 5 units, usually not self-contained but under 1 roof; with few accessory uses; 1 unit may be owner-occupied; original primary use not multi-family.
- (Class 1): Structure with more than 1 unit, of 1 or more rooms; 1 corporate ownership accounts for benefit of all tenant-shareholders, or lease from shareholders; entrance no higher than 3 floors; may have accessory uses.
- (Class 1): Structure with more than 1 unit, each with 1 or more rooms; 1 corporate ownership accounts for benefit of all tenant-shareholders; lease from shareholders; elevator; more than 3 floors; may have accessory uses.
- (CLASS 1 or 2): All other residential multi-family uses not otherwise noted. Mixed-use eligible.
- (CLASS 2): Structure providing a temporary or semi-permanent residence; sleep accommodations, personal services, usually eating/drinking facilities; may include entertainment; 150 rooms or less.

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if on separate lot/paved.

Use Codes

	<u>Use Codes</u>
Code Description	Long Description
032 Hotel-Large	(CLASS 2): Structure providing temporary or semi-permanent residences; full personal services; eating/drinking facilities, entertainment, retail, banquet /conference capabilities; more than 150 rooms.
033 Motel	(CLASS 2): Structure used primarily as temporary residence; may include personal services, restaurant facilities, adequate parking; sleep accommodations may be open to building's exterior.
034 Club-Private	(CLASS 2): Structure used primarily as meeting place for members of an association organized for promotion of a common social/other objective; limited to members/guests. May include meals, residential suites. Mixed-use eligible.
035 Tourist Homes	(CLASS 2): Structure or part-structure used primarily for temporary sleep accommodations; no other services; may provide limited parking.
036 Dormitory	(CLASS 2): Structure or part-structure used as resident hall with sleep accommodations; may provide other services, such as food/beverage facilities.
037 Inn	(CLASS 2): Structure used primarily as a temporary residence. Rooms/suites may include kitchens; no guest central dining other than continental breakfast. No commercial adjuncts, function rooms.
038 Fraternity/Sorority House	(CLASS 1): Resident hall with sleep accommodations; may provide other services, such as food/beverage facilities. Mixed-use eligible.
039 Residential-Transient, Misc	(CLASS 2): All other residential transient not otherwise coded.
041 Store-Small 1-Story	(CLASS 2): Structure used primarily for retail sales; row, attached, or detached; with/without accessory uses; with/without living quarters.
042 Store-Misc	(CLASS 2): Structure used primarily for ground-level retail sales; row, attached, or detached; with/without other uses; with/without living quarters. Mixed-use eligible.
043 Store-Department	(CLASS 2): Structure used primarily for sales of combination of retail products; no living quarters; except custodial staff. Mixed-use eligible.
044 Store-Shopping Center/Mall	(CLASS 2): Structure/combination of structures, enclosed/not; with combination of retail businesses located to present a unified cluster of similar uses with common elements: parking, entrances, pedestrian areas.
045 Store-Restaurant	(CLASS 2): Structure used primarily for retail sales of food/drink prepared for carry-out or on-site consumption; in row; with/without other uses. Mixed-use eligible.
046 Store-Barber/Beauty Shop	(CLASS 2): Structure used primarily for retail sales/individual grooming services; on ground level; row, attached, or detached; other uses may occupy parts. Mixed-use eligible.
047 Store-Super Market	(CLASS 2): Structure used primarily for retail grocery sales; ground level; row, attached, or detached; with/without accessory uses. Mixed-use eligible.
048 Commercial-Retail-Condo	(CLASS 2): Unit in a predominately residential condo complex used for retail sales/service business.
049 Commercial-Retail-Misc	(CLASS 2): All other retail commercial land uses not otherwise coded. Mixed-use eligible.
051 Commercial-Office-Small	(CLASS 2: Structure without elevators used primarily for offices; secondary use may be retail sales, services, parking.
052 Commercial-Office-Large	(CLASS 2): Structure with elevator; used predominantly for offices, secondarily for retail sales, services, parking.
053 Commercial-Planned Development	(CLASS 2): Structure/combination of structures designed to incorporate several coordinated commercial endeavors into 1 closely-grouped unit; may include mall,
	offices, theaters, hotels, etc. Mixed-use eligible.
056 Office-Condo-Horizontal	(CLASS 2): Structure with more than 1 unit; entrance no higher than 3 floors above ground level; designed primarily for office use; may have accessory uses such
	as parking, etc.
057 Office-Condo-Vertical	(CLASS 2): Structure with more than 1 unit, elevator, and more than 3 floors; designed primarily for office use; accessory uses such as parking, etc.
058 Commercial-Office-Condo 059 Commercial-Office-Misc.	(CLASS 2): Unit in a predominantly residential condo complex used as a commercial office. Mixed-use eligible. (CLASS 2): All other commercial office uses which have not been otherwise coded. Mixed-use eligible.
061 Commercial-Banks, Financial	(CLASS 2): Structure with service facility devoted to transactions dealing with money as a commodity.
062 Commercial-Garage, Vehicle Sale	(CLASS 2): Structure with facility for motor vehicle repairs; devoted to retail/ wholesale motor vehicle sales.
063 Commercial-Parking Garage	(CLASS 2): Structure used primarily for public storage of motor vehicles; repair, greasing, washing, or similar services incidental uses.

(CLASS 2): Lot used primarily for public storage of motor vehicles; any repair is incidental use; may have attendance booth, storage lifts, residential parking space

Standards and Services, Rev. 10/2011

064 Parking Lot-Special Purpose

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1101 4th Street, SW, Suite W550, Washingt	ton, DC 20024 Use Codes
Code Description	Long Description
065 Vehicle Service Station-Vintage	(CLASS 2): Structure used for retail sale of motor fuel, lubricants. Incidental services such as lubricaton, hand-car washing; sale, installation, minor repair of tires, batteries, other auto accessories.
066 Theaters, Entertainment	(CLASS 2): Structure with primary use for live, on-screen, or audience-participation entertainment.
067 Commercial-Restaurant	(CLASS 2): Structure used primarily as public eating place for retail sale of food/drink prepared/consumed on-site; secondary accessory uses.
068 Commercial-Restaurant-Fast Food	(CLASS 2): Structure used for retail sale of food/drink (non-alcoholic), cooked/heated in-structure for carry-out or on-site, usually specializing in a particular food.
069 Commercial-Specific Purpose, Misc	(CLASS 2): All other specific purpose commercial uses not otherwise coded. Mixed-use eligible.
071 Industrial-Raw Material Handling	(CLASS 2): Property used primarily to receive, store, handle, ship industrial bulk raw material, normally processed/used at another location.
072 Industrial-Heavy Manufacturing	(CLASS 2): Structure containing processing/manufacturing equipment which handles raw material; may change the material into a finished product for public use or for assembly operation; use limited to structure.
073 Industrial-Light	(CLASS 2): Structure used to process, assemble, or manufacture raw, semi-finished, or finished materials, and/or completed components; use not limited to structure.
074 Industrial-Warehouse-1-Story	(CLASS 2): Structure used primarily to store materials/finished products; unlimited story height; accessory uses: office and/or retail-wholesale display area, parking.
075 Industrial-Warehouse-Multi-Story	(CLASS 2): Structure used primarily to store materials/finished products; 2 or more floors devoted to structure's primary use; accessory office and retail-wholesale display area.
076 Industrial-Truck Terminal	(CLASS 2): Structure used primarily to store (short-term) and transfer (turn-around) materials/finished products shipped by truck; raised truck level bays for receiving/shipping; accessory office.
078 Warehouse-Condo	(CLASS 2): Structure used primarily to store materials/finished products; unlimited story height, 2 or more floors; accessory office and/or retail/wholesale display area.
079 Industrial-Misc	(CLASS 2): All other industrial uses not otherwise coded. Mixed-use eligible.
081 Religious	(CLASS 2): Structure devoted to public worship; housing for and/or education of clergy/officials connected to religious activity; religious communities.
082 Medical	(CLASS 2): Structure devoted to public/private medical or surgical care to the sick or injured; outpatient diagnosis/treatment; education of medical personnel/officials.
083 Educational	(CLASS 2): Structure devoted to any level of public/private instruction. May include administrative, accessory functions; parking, retail sales, secondary use.
084 Public Service	(CLASS 2): Structure used primarily to serve public to protect people or property; utility service; other public service. Accessory uses are secondary.
085 Embassy, Chancery, etc.	(CLASS 2): Structure used primarily as offices of an ambassador or foreign government. Accessory uses secondary.
086 Museum, Library, Gallery	(CLASS 2): Structure for exhibition, display, storage of art works, other displayable chattels; usually open for public enjoyment; accessory uses (parking, retail sales).
087 Recreational	(CLASS 2): Facility primarily used for public viewing of sporting events, training/participation in recreational activities, or any other special sporting or leisure activity.
088 Health Care Facility	(CLASS 2): Structure devoted to public/private medical care/treatment of the sick or injured; may include other medically connected activities, other uses (retail sales, parking).
089 Special Purpose-Misc	(CLASS 2): All other special purpose uses not otherwise coded. Mixed-use eligible.
091 Vacant-True	(Class 1): Lot not improved with a structure and Residential vacant land (formerly Class 3).
092 Vacant-with Permit	(CLASS 1): Lot for which an unexpired building permit has been issued.
093 Vacant-Zoning Limits	(CLASS 1): Lot on which DC Zoning regulations prohibit an owner to build as a matter of right or lot with deed or covenant restrictions precluding buildings.

(CLASS 1): Lot assigned no real estate improvement value, but having part of a structure whose value is assigned to another lot. Mixed-use eligible.

(CLASS 1): Lot with relatively permanent structures (storage tanks, railroad tracks), but not buildings, used for residential purposes, making the lot unbuildable.

Standards and Services, Rev. 10/2011

094 Vacant-False-Abutting

095 Vacant-Residential Use

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Use Codes

Code Description

096 Vacant-Unimproved Parking

097 Vacant-Improved and Abandoned

116 Condo-Horizontal-Combined-

117 Condo-Vertical-Combined

126 Coop-Horizontal-Mixed Use

127 Coop-Vertical-Mixed Use

165 Vehicle Service Station-Kiosk

189 Special Purpose-Memorial

191 Vacant-True

192 Vacant-With Permit

193 Vacant-Zoning limits

194 Vacant-False-Abutting

195 Vacant-Commercial Use

196 Vacant-Unimproved Parking

197 Vacant-Improved and Abandoned

214 Garage-Multi-Family

216 Condo-Investment-Horizontal

217 Condo-Investment-Vertical

265 Vehicle Service Station-Kiosk

316 Condo-Duplex

365 Vehicle Service Station-Market

416 Condo-Horizontal-Parking-Unid

417 Condo-Vertical-Parking-Unid

465 Vehicle Service Station-Market

516 Condo-Detached

995 Condo Main (class 1):

Long Description

(CLASS 1): Unimproved, graveled parking lot with approved parking permit.

(CLASS 3): Residential and commercial improved vacant and abandoned properties (formerly Class 3). No longer in use.

(CLASS 1): Unit in a structure with entrance no higher than 3 floors; designed primarily for single family residential use; accessory uses. Abuts primary unit; owner entitled to lower (Class 1) tax rate, but not Homestead Deduction.

(CLASS 1): Unit in structure with entrance no higher than 3 floors, designed primarily for single family residential use; accessory uses. Abuts primary unit; owner entitled to lower (Class 1) tax rate, but not Homestead Deduction.

(Class 1 or 2): Structure with more than 1 unit, an elevator, more than 3 floors; under 1 corporate ownership which acts to benefit all shareholders-tenants. Additional uses: retail sales, restaurants, offices. Mixed-use eligible.

(Class 1 or 2): Structure with more than 1 unit, elevator, more than 3 floors; under 1 corporate ownership which acts to benefit all shareholders-tenants. Additional uses: retail sales, restaurants, offices. Mixed-use eliqible.

(CLASS 2): Small cashier booth used for to sell motor oil, lubricants, small miscellaneous items (candy, gum, cigarettes).

(CLASS 2): Permanent structure other than a building devoted to or available for public use: statues, fountains, pools, etc.

(CLASS 2): Lot not improved with a structure and commercial vacant land (formerly Class 3).

(CLASS 2): Lot for which an unexpired building permit has been issued.

(CLASS 2): Lot on which DC Zoning regulations prohibit an owner to build as a matter of right or lot with deed or covenant restrictions precluding buildings.

(CLASS 2): Lot assigned no real estate improvement value, but having part of a structure whose value is assigned to another lot. Mixed-use eligible.

(CLASS 2): Lot with relatively permanent structures (storage tanks, railroad tracks), but not buildings, used for commercial purpose, making the lot unbuildable.

(CLASS 2): Unimproved, graveled parking lot with approved parking permit.

(CLASS 3): Residential and commercial improved vacant and abandoned properties (formerly Class 3). No longer in use.

(CLASS 1): Structure used primarily as accessory to multi-family residence; no living quarters; on individual lot.

(CLASS 1): Unit with entrance no higher than 3 floors above ground level, designed for single- family primary use; accessory uses. Fee owner's presumptive motivation is net investment income.

(CLASS 1): Unit with entrance no higher than 3 floors above ground level; designed for single- family primary use; accessory uses. Fee owner's presumptive motivation is net investment income.

(CLASS 2): Small cashier booth used for retail of motor oil, small miscellaneous items (candy, gum); and provides non-incidental services like car washing.

(CLASS 1): Enclosed space with 2 piggy-backed units; designed primarily for single-family use; accessory uses: parking, laundry, storage, balcony, etc.

(CLASS 2): Structure used for retail of motor oil, lubricants, incidental items (edibles, household products).

(CLASS 1): Condo in regime where ownership of an associated parking space, following condo's sale, is unclear. (Assessor must determine space's status.)

(CLASS 1): Condo in regime where ownership of an associated parking space, following condo's sale, is unclear. (Assessor must determine space's status.)

(CLASS 2): Structure used to sell motor oil, lubricants, incidental items (edibles, household products); and to provide non-incidental services such as car washing.

(CLASS 1): Enclosed space of one unit of 1 or more rooms in a structure designed primarily for single-family residential use; accessory uses (parking, laundry, storage space, balcony, etc.)

Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
AP1	0	\$113.08	5	60	80	99
AP1	А	\$116.35	5	70	80	99
AP1	В	\$118.56	5	70	80	99
AP1	С	\$113.08	5	60	80	99
AP1	D	\$111.93	5	50	80	99
AP1	S	\$105.98	5	50	80	99
AP2	0	\$135.25	5	60	80	99
AP2	А	\$182.86	5	70	80	99
AP2	В	\$174.97	5	70	80	99
AP2	С	\$135.25	5	60	80	99
AP2	D	\$126.72	5	50	80	99
BN1	0	\$258.32	5	60	80	99
BN1	A	\$310.54	5	70	80	99
BN1	В	\$296.41	5	70	80	99
BN1	C	\$258.32	5	60	80	99
BN1	D	\$237.86	5	50	80	99
BN1	S	\$221.59	5	50	80	99
BS1	0	\$197.31	5	60	80	99
BS1	A	\$257.22	5	70	80	99
BS1	В	\$229.03	5	70	80	99
BS1	C	\$197.31	5	60	80	99
BS1	D	\$179.70	5	50	80	99
BS1	S	\$70.47	5	50	80	99
CD	R	\$132.13	5	99	80	99
CND	0	\$294.88	5	50	80	99
CND	A		5	50	80	99
CND	В	\$294.88 \$294.88	5	50	80	99
CND	С		5	50	80	99
CND	D	\$294.88 \$294.88	5	50	80	99
CND						
CND	R S	\$294.88	5	50	80	99
		\$294.88	5	50	80	99
CW1	0	\$162.08	5	60	80	99
CW1	A	\$192.04	5	70	80	99
CW1	В	\$183.22	5	70	80	99
CW1	С	\$162.08	5	60	80	99
CW1	D	\$144.47	5	50	80	99
CW1	S	\$144.47	5	50	80	99
ED1	0	\$180.28	5	60	80	99
ED1	A	\$244.48	5	70	80	99
ED1	В	\$236.73	5	70	80	99
ED1	C	\$180.28	5	60	80	99
ED1	D	\$171.83	5	50	80	99
ED1	S	\$170.86	5	50	80	99
GEN	0	\$169.13	5	60	80	99
GEN	Α	\$234.47	5	70	80	99
GEN	В	\$215.25	5	70	80	99
GEN	С	\$169.13	5	60	80	99
GEN	D	\$144.14	5	50	80	99
GEN	S	\$144.14	5	50	80	99
GS1	0	\$181.15	5	60	80	99
GS1	А	\$186.36	5	70	80	99
GS1	В	\$188.09	5	70	80	99
GS1	С	\$181.15	5	60	80	99
GS1	D	\$172.51	5	50	80	99
GS1	S	\$120.74	5	50	80	99
GS2	0	\$164.93	5	60	80	99

Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
GS2	Α	\$256.21	5	70	80	99
GS2	В	\$244.20	5	70	80	99
GS2	С	\$164.93	5	60	80	99
GS2	D	\$153.76	5	50	80	99
GS2	S	\$149.56	5	50	80	99
GS3	0	\$207.57	5	60	80	99
GS3	Α	\$294.14	5	70	80	99
GS3	В	\$282.27	5	70	80	99
GS3	С	\$207.57	5	60	80	99
GS3	D	\$193.61	5	50	80	99
GS3	S	\$185.57	5	50	80	99
HT1	0	\$140.11	5	60	80	99
HT1	A	\$167.62	5	70	80	99
HT1	В	\$162.83	5	70	80	99
HT1	C	\$140.11	5	60	80	99
HT1	D	\$131.92	5	50	80	99
HT1	S	\$103.82	5	50	80	99
HT2	0	\$222.24	5	60	80	99
HT2	A	\$228.34	5	70	80	99
HT2	В		5	70	80	99
	С	\$222.24				
HT2		\$174.95	5	60	80	99
HT2	D	\$164.07	5	50	80	99
HT2	S	\$220.28	5	50	80	99
MC1	0	\$319.07	5	60	80	99
MC1	Α	\$418.66	5	70	80	99
MC1	В	\$406.57	5	70	80	99
MC1	С	\$319.07	5	60	80	99
MC1	D	\$294.91	5	50	80	99
MC1	S	\$165.70	5	50	80	99
MC2	0	\$206.80	5	60	80	99
MC2	Α	\$262.74	5	70	80	99
MC2	В	\$252.51	5	70	80	99
MC2	С	\$206.80	5	60	80	99
MC2	D	\$192.23	5	50	80	99
MC2	S	\$206.80	5	50	80	99
MLT	R	\$96.34	5	70	80	70
MN1	0	\$77.94	5	60	80	99
MN1	А	\$89.76	5	70	80	99
MN1	В	\$86.33	5	70	80	99
MN1	C	\$77.94	5	60	80	99
MN1	D	\$70.63		50	80	99
MN1	S	\$70.12		50	80	99
MN2	0	\$168.72		60	80	99
MN2	A	\$222.73		70	80	99
MN2	В	\$218.95		70	80	99
MN2	C	\$168.72		60	80	99
MN2	D	\$110.47	5	50	80	99
MN2	S	\$157.59	5	50	80	99
MN4	0	\$186.75	5	60	80	99
MN4	A	\$237.84	5	70	80	99
MN4	В	\$204.36	5	70	80	99
MN4	С	\$186.75		60	80	99
MN4	D	\$172.65		50	80	99
MN4	S	\$172.65		50	80	99
MRC	0	\$136.19		75	40	75
MRC	Α	\$136.19	5	75	40	75

Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
MRC	В	\$136.19	5	75	40	75
MRC	С	\$136.19	5	75	40	75
MRC	D	\$136.19	5	75	40	75
MRC	S	\$136.19	5	75	40	75
OF1	0	\$175.43	5	60	80	99
OF1	Α	\$239.45	5	70	80	99
OF1	В	\$229.52	5	70	80	99
OF1	С	\$175.43	5	60	80	99
OF1	D	\$162.47	5	50	80	99
OF1	S	\$156.33	5	50	80	99
OF2	0	\$175.43	5	60	80	99
OF2	Α	\$239.45	5	70	80	99
OF2	В	\$229.52	5	70	80	99
OF2	С	\$175.43	5	60	80	99
OF2	D	\$162.05	5	50	80	99
OF2	S	\$156.33	5	50	80	99
OF3	0	\$229.52	5	60	80	99
OF3	А	\$239.45	5	70	80	99
OF3	В	\$229.52	5	70	80	99
OF3	C	\$175.43	5	60	80	99
OF3	D	\$162.05	5	50	80	99
OF3	S	\$156.33	5	50	80	99
OFF	0	\$128.93	5	60	80	99
OFF	A	\$169.46	5	70	80	99
OFF	В	\$158.39	5	70	80	99
OFF	C	\$128.93	5	60	80	99
OFF	D	\$117.88	5	50	80	99
OFF	S	\$117.88	5	50	80	99
PK1	0	\$101.83	5	60	80	99
PK1	A	\$101.83	5	70	80	99
PK1	В	\$105.72	5	70	80	99
PK1	С	\$105.72	5	60	80	99
PK1	D		5	50	80	99
PK1	S	\$93.28				
		\$73.39	5	50	80	99
PK2	0	\$77.79	5	60	80	99
PK2	A	\$80.36	5	70	80	99
PK2	В	\$77.79	5	70	80	99
PK2	С	\$74.93	5	60	80	99
PK2	D	\$68.85	5	50	80	99
PK2	S	\$42.04		50	80	90
PS1	0	\$210.81	5	60	80	99
PS1	A	\$287.99		70	80	99
PS1	В	\$276.09		70	80	99
PS1	С	\$210.81	5	60	80	99
PS1	D	\$197.97	5	50	80	99
PS1	S	\$180.89		50	80	99
PS2	0	\$212.20		60	80	99
PS2	Α	\$279.23		70	80	99
PS2	В	\$278.13		70	80	99
PS2	С	\$212.20	5	60	80	99
PS2	D	\$200.66	5	50	80	99
PS2	S	\$139.32	5	50	80	99
R11	R	\$133.84	6	75	80	75
R12	R	\$157.85		75	80	75
R13	R	\$133.66		75	80	75
1113						

Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
R19	R	\$133.84	6	75	80	75
R23	R	\$105.55	6	75	80	75
R24	R	\$136.19	6	75	80	75
RB1	0	\$188.35	5	60	80	99
RB1	Α	\$243.63	5	70	80	99
RB1	В	\$243.54	5	70	80	99
RB1	С	\$188.35	5	60	80	99
RB1	D	\$178.36	5	50	80	99
RB1	S	\$173.16	5	50	80	99
RES	R	\$96.10	5	70	80	70
RH1	0	\$133.84	5	70	80	99
RH1	A	\$133.84	5	70	80	99
RH1	В	\$133.84	5	70	80	99
RH1	C	\$133.84	5	70	80	99
RH1	D	\$133.84	5	70	80	99
RH1	S	\$133.84	5	70	80	99
RH2	0	\$165.14	5	60	80	99
RH2	A	\$214.38	5	70	80	99
RH2	В	\$208.13	5	70	80	99
RH2	С	-	5	60	80	99
		\$165.14				
RH2	D	\$152.45	5	50	80	99
RH2	S	\$113.41	5	50	80	99
RS1	0	\$180.25	5	60	80	99
RS1	A	\$234.11	5	70	80	99
RS1	В	\$236.27	5	70	80	99
RS1	С	\$180.25	5	60	80	99
RS1	D	\$166.25	5	50	80	99
RS1	S	\$164.65	5	50	80	99
RS2	0	\$194.42	5	60	80	99
RS2	А	\$258.37	5	70	80	99
RS2	В	\$260.76	5	70	80	99
RS2	С	\$194.42	5	60	80	99
RS2	D	\$179.06	5	50	80	99
RS2	S	\$178.23	5	50	80	99
RT1	0	\$121.27	5	60	80	99
RT1	Α	\$151.55	5	70	80	99
RT1	В	\$146.66	5	70	80	99
RT1	С	\$121.27	5	60	80	99
RT1	D	\$112.79	5	50	80	99
RT1	S	\$111.18	5	50	80	99
RT2	0	\$117.20	5	60	80	99
RT2	A	\$134.19	5	70	80	99
RT2	В	\$135.44	5	70	80	99
RT2	C	\$117.20	5	60	80	99
RT2	D	\$107.92	5	50	80	99
RT2	S	\$106.32	5	50	80	99
RT3	0	\$184.18	5	60	80	99
RT3	A	\$189.97	5	70	80	99
RT3	В	\$184.18	5	70	80	99
RT3	С		5	60	80	99
		\$151.98				
RT3	D	\$179.14	5	50	80	99
RT3	S	\$180.85	5	50	80	99
RT4	0	\$115.80	5	60	80	99
RT4	A	\$113.53	5	70	80	99
RT4	В	\$114.58	5	70	80	99
RT4	С	\$115.80	5	60	80	99

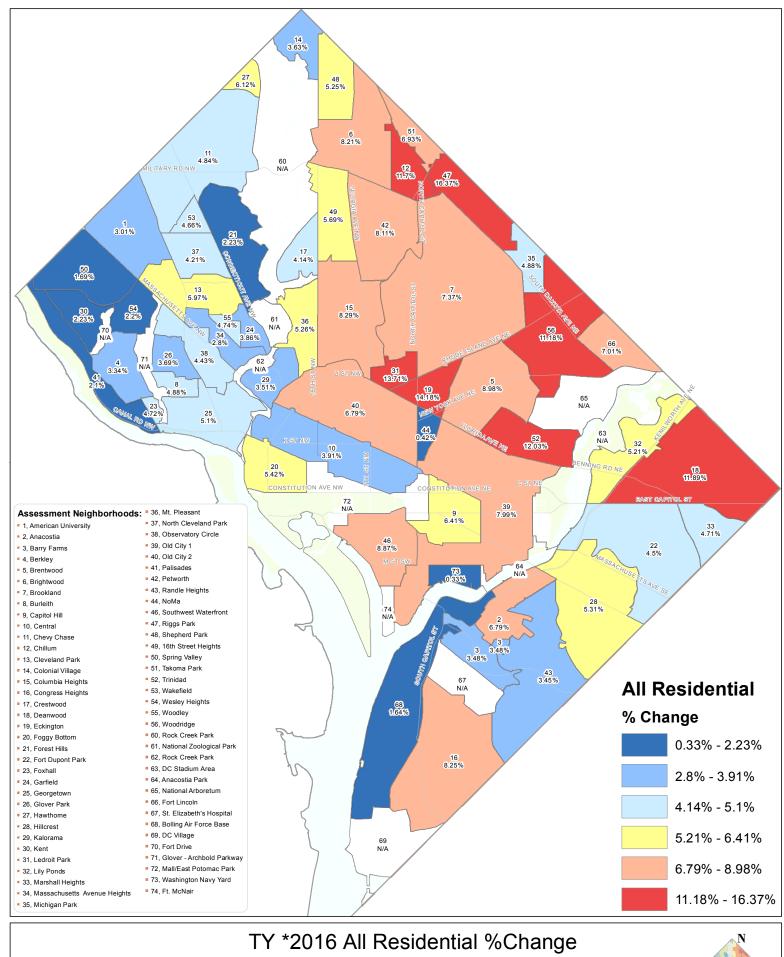
Cost Group	Class	Base Rate	Depr. Table	Econ. Life	Max. Depr.	Max. Age
RT4	D	\$105.92	5	50	80	99
RT4	S	\$102.92	5	50	80	99
SIN	R	\$154.17	5	70	80	70
SS1	0	\$237.28	5	70	80	99
SS1	Α	\$239.38	5	70	80	99
SS1	В	\$239.13	5	70	80	99
SS1	С	\$237.28	5	70	80	99
SS1	D	\$237.21	5	70	80	99
SS1	S	\$237.28	5	70	80	99
SS2	0	\$192.31	5	60	80	99
SS2	Α	\$192.21	5	70	80	99
SS2	В	\$193.99	5	70	80	99
SS2	С	\$192.31	5	60	80	99
SS2	D	\$181.70	5	50	80	99
SS2	S	\$186.75	5	50	80	99
SV1	0	\$85.31	5	60	80	99
SV1	Α	\$92.39	5	70	80	99
SV1	В	\$95.06	5	70	80	99
SV1	С	\$85.31	5	60	80	99
SV1	D	\$73.66	5	50	80	99
SV1	S	\$71.03	5	50	80	99
TM1	0	\$91.61	5	60	80	99
TM1	Α	\$112.75	5	70	80	99
TM1	В	\$102.18	5	70	80	99
TM1	С	\$91.61	5	60	80	99
TM1	D	\$84.57	5	50	80	99
TM1	S	\$84.57	5	50	80	99
UT1	0	\$160.32	5	60	80	99
UT1	Α	\$181.47	5	70	80	99
UT1	В	\$169.13	5	70	80	99
UT1	С	\$160.32	5	60	80	99
UT1	D	\$137.42	5	50	80	99
UT1	S	\$137.42	5	50	80	99
WH1	0	\$80.09	5	60	80	99
WH1	Α	\$118.69	5	70	80	99
WH1	В	\$115.40	5	70	80	99
WH1	С	\$80.09	5	60	80	99
WH1	D	\$70.78	5	50	80	99
WH1	S	\$70.96	5	50	80	99
WH2	0	\$67.44	5	60	80	99
WH2	Α	\$101.21	5	70	80	99
WH2	В	\$97.52	5	70	80	99
WH2	С	\$67.44	5	60	80	99
WH2	D	\$59.80	5	50	80	99
WH2	S	\$59.89	5	50	80	99
WH3	0	\$94.01	5	60	80	99
WH3	А	\$94.87	5	70	80	99
WH3	В	\$97.60	5	70	80	99
WH3	С	\$105.73	5	60	80	99
WH3	D	\$65.48	5	50	80	99
WH3	S	\$93.11	5	50	80	99

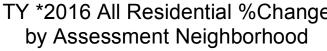
Real Property Assessment Division 2016 Base Change ALL PROPERTIES

			Total Base			
Neighborhood	Name	2015	2016	Difference	% Change	
001	American University Park	\$3,234,720,787	\$3,374,652,737	\$139,931,950	4.33%	
002	Anacostia	\$704,957,620	\$734,299,327	\$29,341,707	4.16%	
003	Barry Farms	\$387,974,446	\$400,468,278	\$12,493,832	3.22%	
004	Berkley	\$1,497,802,600	\$1,554,868,740	\$57,066,140	3.81%	
005	Brentwood	\$1,145,640,461	\$1,293,175,688	\$147,535,227	12.88%	
006	Brightwood	\$2,184,009,537	\$2,345,132,548	\$161,123,011	7.38%	
007	Brookland	\$5,773,268,826	\$5,971,965,100	\$198,696,274	3.44%	
800	Burleith	\$861,010,947	\$896,213,260	\$35,202,313	4.09%	
009	Capitol Hill	\$3,945,142,159	\$4,170,311,649	\$225,169,490	5.71%	
010 011	Central Chara Chara	\$59,352,533,829	\$63,061,002,409	\$3,708,468,580	6.25%	
012	Chevy Chase Chillum	\$5,968,261,844 \$503,609,440	\$6,204,449,165 \$546,994,344	\$236,187,321	3.96%	
013	Cleveland Park	\$3,167,992,393	\$3,330,310,249	\$43,384,904 \$162,317,856	8.61% 5.12%	
014	Colonial Village	\$586,914,890	\$606,147,720	\$19,232,830	3.28%	
015	Columbia Heights	\$7,340,570,533	\$7,778,347,932	\$437,777,399	5.96%	
016	Congress Heights	\$1,744,261,817	\$1,840,606,005	\$96,344,188	5.52%	
017	Crestwood	\$737,135,640	\$765,626,190	\$28,490,550	3.87%	
018	Deanwood	\$1,763,968,322	\$1,925,346,888	\$161,378,566	9.15%	
019	Eckington	\$1,804,624,490	\$1,981,934,965	\$177,310,475	9.83%	
020	Foggy Bottom	\$9,072,391,393	\$9,512,037,127	\$439,645,734	4.85%	
021	Forest Hills	\$3,894,058,334	\$3,969,010,653	\$74,952,319	1.92%	
022	Fort Dupont Park	\$922,835,270	\$957,267,120	\$34,431,850	3.73%	
023	Foxhall	\$292,508,210	\$306,169,250	\$13,661,040	4.67%	
024	Garfield	\$2,025,617,986	\$2,087,507,833	\$61,889,847	3.06%	
025	Georgetown	\$8,672,138,272	\$9,477,851,554	\$805,713,282	9.29%	
026	Glover Park	\$1,414,055,123	\$1,464,086,780	\$50,031,657	3.54%	
027	Hawthorne	\$261,283,380	\$277,284,720	\$16,001,340	6.12%	
028	Hillcrest	\$1,132,534,470	\$1,185,189,110	\$52,654,640	4.65%	
029	Kalorama	\$5,001,404,125	\$5,124,770,419	\$123,366,294	2.47%	
030	Kent	\$1,399,931,700	\$1,426,177,500	\$26,245,800	1.87%	
031	LeDroit Park	\$1,392,087,420	\$1,520,920,470	\$128,833,050	9.25%	
032	Lily Ponds	\$542,277,135	\$560,052,935	\$17,775,800	3.28%	
033	Marshall Heights	\$450,470,060	\$467,023,660	\$16,553,600	3.67%	
034 035	Massachusetts Av Heights Michigan Park	\$1,528,834,813	\$1,553,860,534	\$25,025,721	1.64%	
036	Mount Pleasant	\$392,005,350 \$3,819,931,666	\$409,190,130 \$3,995,970,295	\$17,184,780 \$176,038,629	4.38%	
037	North Cleveland Park	\$1,306,047,894	\$1,357,133,757	\$51,085,863	4.61% 3.91%	
038	Observatory Circle	\$2,383,189,071	\$2,504,136,739	\$120,947,668	5.08%	
039	Old City I	\$14,050,860,571	\$14,912,484,495	\$861,623,924	6.13%	
040	Old City II	\$19,604,570,900	\$20,686,136,189	\$1,081,565,289	5.52%	
041	Palisades	\$1,164,723,200	\$1,187,652,520	\$22,929,320	1.97%	
042	Petworth	\$2,714,157,648	\$2,917,393,284	\$203,235,636	7.49%	
043	Randle Heights	\$1,244,108,110	\$1,269,442,140	\$25,334,030	2.04%	
044	NoMa	\$4,848,066,665	\$5,012,723,298	\$164,656,633	3.40%	
046	SW Waterfront	\$8,005,113,552	\$8,593,673,785	\$588,560,233	7.35%	
047	Riggs Park	\$962,650,860	\$1,084,900,855	\$122,249,995	12.70%	
048	Shepherd Park	\$701,904,400	\$736,560,140	\$34,655,740	4.94%	
049	Sixteenth Street Heights	\$1,404,834,100	\$1,474,429,788	\$69,595,688	4.95%	
050	Spring Valley	\$1,974,771,785	\$2,010,166,480	\$35,394,695	1.79%	
051	Takoma	\$532,457,590	\$563,354,870	\$30,897,280	5.80%	
052	Trinidad	\$1,121,409,797	\$1,242,914,282	\$121,504,485	10.83%	
053	Wakefield	\$737,440,490	\$771,071,260	\$33,630,770	4.56%	
054	Wesley Heights	\$1,766,515,976	\$1,809,484,439	\$42,968,463	2.43%	
055	Woodley	\$388,480,740	\$402,151,760	\$13,671,020	3.52%	
056	Woodridge	\$1,592,398,310	\$1,703,970,718	\$111,572,408	7.01%	
059	Rail Road Tracks	\$2,527,390	\$2,527,390	\$0	0.00%	
063	North Anacostia Park	\$3,362,570	\$3,368,540	\$5,970	0.18%	
064	Anacostia Park	\$219,000	\$219,000	\$0	0.00%	
066	Fort Lincoln	\$467,502,360	\$495,738,550	\$28,236,190	6.04%	
068	Bolling AFB & Naval Research	\$39,035,310	\$39,193,150	\$157,840	0.40%	
069 073	D.C. Village	\$5,769,580 \$802,710,020	\$5,763,810 \$821,804,080	-\$5,770	-0.10%	
UIS	Washington Navy Yard Totals:	\$802,710,920 \$212,743,594,077	\$821,894,080 \$224,684,708,603	\$19,183,160 \$11,941,114,526	2.39% 5.61%	

Real Property Assessment Division 2016 Base Change RESIDENTIAL (Class 1)

			Total Base			
Neighborhood	Name	2015	2016	Difference	% Change	
001	American University Park	\$2,174,685,690	\$2,240,063,440	\$65,377,750	3.01%	
002	Anacostia	\$439,733,180	\$469,614,400	\$29,881,220	6.80%	
003	Barry Farms	\$238,826,860	\$247,136,110	\$8,309,250	3.48%	
004	Berkley	\$1,182,446,920	\$1,221,970,220	\$39,523,300	3.34%	
005	Brentwood	\$309,823,520	\$337,657,320	\$27,833,800	8.98%	
006	Brightwood	\$1,915,684,247	\$2,072,957,550	\$157,273,303	8.21%	
007	Brookland	\$2,780,362,276	\$2,985,269,550	\$204,907,274	7.37%	
800	Burleith	\$771,295,427	\$808,956,360	\$37,660,933	4.88%	
009	Capitol Hill	\$3,137,714,389	\$3,338,769,459	\$201,055,070	6.41%	
010	Central	\$5,235,267,394	\$5,439,963,100	\$204,695,706	3.91%	
011 012	Chevy Chase Chillum	\$4,800,652,034	\$5,033,010,840	\$232,358,806	4.84%	
013	Cleveland Park	\$352,116,190 \$2,438,329,380	\$393,324,320	\$41,208,130	11.70%	
014	Colonial Village	\$528,690,320	\$2,583,815,540 \$547,856,910	\$145,486,160	5.97%	
015	Columbia Heights	\$5,174,831,383	\$5,603,570,435	\$19,166,590 \$428,739,052	3.63% 8.29%	
016	Congress Heights	\$1,115,842,630	\$1,207,908,390	\$92,065,760	8.25%	
017	Crestwood	\$681,305,300	\$709,499,340	\$28,194,040	4.14%	
018	Deanwood	\$1,199,218,332	\$1,341,783,873	\$142,565,541	11.89%	
019	Eckington	\$1,139,564,510	\$1,301,171,240	\$161,606,730	14.18%	
020	Foggy Bottom	\$1,290,766,345	\$1,360,731,860	\$69,965,515	5.42%	
021	Forest Hills	\$2,825,252,684	\$2,888,314,210	\$63,061,526	2.23%	
022	Fort Dupont Park	\$748,655,150	\$782,355,810	\$33,700,660	4.50%	
023	Foxhall	\$289,086,740	\$302,734,500	\$13,647,760	4.72%	
024	Garfield	\$1,550,816,336	\$1,610,678,620	\$59,862,284	3.86%	
025	Georgetown	\$4,948,225,314	\$5,200,624,908	\$252,399,594	5.10%	
026	Glover Park	\$1,313,714,103	\$1,362,221,190	\$48,507,087	3.69%	
027	Hawthorne	\$260,525,060	\$276,472,200	\$15,947,140	6.12%	
028	Hillcrest	\$987,287,890	\$1,039,731,350	\$52,443,460	5.31%	
029	Kalorama	\$3,131,950,756	\$3,242,030,620	\$110,079,864	3.51%	
030	Kent	\$1,216,331,790	\$1,243,517,120	\$27,185,330	2.24%	
031	LeDroit Park	\$923,626,110	\$1,050,252,910	\$126,626,800	13.71%	
032	Lily Ponds	\$283,099,550	\$297,852,960	\$14,753,410	5.21%	
033	Marshall Heights	\$331,917,680	\$347,554,160	\$15,636,480	4.71%	
034	Massachusetts Av Heights	\$635,993,350	\$653,801,840	\$17,808,490	2.80%	
035 036	Michigan Park	\$344,363,080	\$361,187,220	\$16,824,140	4.89%	
037	Mount Pleasant North Cleveland Park	\$3,089,072,646	\$3,251,651,000	\$162,578,354	5.26%	
038	Observatory Circle	\$855,054,565 \$1,390,136,750	\$891,025,346 \$1,451,802,010	\$35,970,781	4.21%	
039	Old City I	\$9,146,554,422	\$9,877,444,868	\$61,665,260 \$730,890,446	4.44% 7.99%	
040	Old City II	\$11,947,876,824	\$12,758,545,744	\$810,668,920	6.79%	
041	Palisades	\$1,087,246,960	\$1,110,059,620	\$22,812,660	2.10%	
042	Petworth	\$2,479,398,298	\$2,680,474,960	\$201,076,662	8.11%	
043	Randle Heights	\$966,229,570	\$999,560,430	\$33,330,860	3.45%	
044	NoMa	\$480,471,670	\$482,507,090	\$2,035,420	0.42%	
046	SW Waterfront	\$1,576,400,644	\$1,716,217,690	\$139,817,046	8.87%	
047	Riggs Park	\$733,581,850	\$853,700,890	\$120,119,040	16.37%	
048	Shepherd Park	\$625,391,540	\$658,237,400	\$32,845,860	5.25%	
049	Sixteenth Street Heights	\$1,179,299,610	\$1,246,440,340	\$67,140,730	5.69%	
050	Spring Valley	\$1,483,002,435	\$1,508,104,540	\$25,102,105	1.69%	
051	Takoma	\$334,012,680	\$357,166,710	\$23,154,030	6.93%	
052	Trinidad	\$947,307,720	\$1,061,278,260	\$113,970,540	12.03%	
053	Wakefield	\$718,160,590	\$751,612,180	\$33,451,590	4.66%	
054	Wesley Heights	\$1,598,035,546	\$1,633,171,030	\$35,135,484	2.20%	
055	Woodley	\$282,264,060	\$295,657,430	\$13,393,370	4.74%	
056	Woodridge	\$936,152,110	\$1,040,792,590	\$104,640,480	11.18%	
059	Rail Road Tracks	\$0	\$0	\$0	0.00%	
063	North Anacostia Park	\$0	\$0	\$0	0.00%	
064	Anacostia Park	\$0	\$0	\$0	0.00%	
066	Fort Lincoln	\$402,670,290	\$430,904,100	\$28,233,810	7.01%	
068	Bolling AFB & Naval Research	\$9,629,280	\$9,787,120	\$157,840	1.64%	
069	D.C. Village	\$0	\$0	\$0	0.00%	
073	Washington Navy Yard	\$69,219,370	\$69,449,620	\$230,250	0.33%	







Real Property Assessment Division 2016 Base Change COMMERCIAL (Class 2)

			Total Base		
Neighborhood	Name	2015	2016	Difference	% Change
001	American University Park	\$609,522,957	\$635,395,324	\$25,872,367	4.24%
002	Anacostia	\$189,758,010	\$188,894,897	-\$863,113	-0.45%
003	Barry Farms	\$27,306,196	\$29,932,875	\$2,626,679	9.62%
004	Berkley	\$16,357,870	\$16,539,320	\$181,450	1.11%
005	Brentwood	\$599,056,791	\$716,585,518	\$117,528,727	19.62%
006	Brightwood	\$160,654,920	\$162,609,228	\$1,954,308	1.22%
007	Brookland	\$529,261,228	\$541,546,828	\$12,285,600	2.32%
800	Burleith	\$0	\$0	\$0	0.00%
009 010	Capitol Hill Central	\$596,967,440 \$50,169,928,515	\$621,938,160 \$53,505,198,528	\$24,970,720	4.18%
011	Chevy Chase	\$710,852,380	\$708,043,169	\$3,335,270,013 -\$2,809,211	6.65% -0.40%
012	Chillum	\$91,418,700	\$92,787,553	\$1,368,853	1.50%
013	Cleveland Park	\$533,375,293	\$546,351,069	\$12,975,776	2.43%
014	Colonial Village	\$0	\$0	\$0	0.00%
015	Columbia Heights	\$871,749,680	\$858,918,747	-\$12,830,933	-1.47%
016	Congress Heights	\$96,437,817	\$97,221,635	\$783,818	0.81%
017	Crestwood	\$756,850	\$776,750	\$19,900	2.63%
018	Deanwood	\$224,422,750	\$230,523,015	\$6,100,265	2.72%
019	Eckington	\$552,414,680	\$570,413,932	\$17,999,252	3.26%
020	Foggy Bottom	\$3,608,064,668	\$3,853,129,667	\$245,064,999	6.79%
021	Forest Hills	\$465,856,080	\$480,569,627	\$14,713,547	3.16%
022	Fort Dupont Park	\$55,945,170	\$55,954,440	\$9,270	0.02%
023	Foxhall	\$3,009,370	\$3,009,370	\$0	0.00%
024	Garfield	\$285,819,370	\$284,307,453	-\$1,511,917	-0.53%
025	Georgetown	\$3,007,186,058	\$3,547,338,716	\$540,152,658	17.96%
026	Glover Park	\$71,092,480	\$72,625,230	\$1,532,750	2.16%
027	Hawthorne	\$0	\$0	\$0	0.00%
028	Hillcrest	\$79,924,280	\$80,030,180	\$105,900	0.13%
029	Kalorama	\$748,520,889	\$767,060,599	\$18,539,710	2.48%
030	Kent	\$94,106,480	\$92,696,980	-\$1,409,500	-1.50%
031	LeDroit Park	\$21,676,510	\$21,757,380	\$80,870	0.37%
032 033	Lily Ponds Marshall Heights	\$108,016,135 \$12,512,050	\$109,817,245 \$12,544,870	\$1,801,110 \$32,820	1.67% 0.26%
034	Massachusetts Av Heights	\$127,293,933	\$128,696,184	\$1,402,251	1.10%
035	Michigan Park	\$6,726,150	\$6,849,190	\$1,402,231	1.83%
036	Mount Pleasant	\$503,872,200	\$516,477,960	\$12,605,760	2.50%
037	North Cleveland Park	\$278,153,019	\$293,546,231	\$15,393,212	5.53%
038	Observatory Circle	\$468,568,631	\$477,980,019	\$9,411,388	2.01%
039	Old City I	\$4,350,586,454	\$4,476,363,732	\$125,777,278	2.89%
040	Old City II	\$5,668,284,969	\$5,921,773,411	\$253,488,442	4.47%
041	Palisades	\$41,074,600	\$41,351,430	\$276,830	0.67%
042	Petworth	\$118,273,220	\$118,291,654	\$18,434	0.02%
043	Randle Heights	\$92,679,430	\$82,246,480	-\$10,432,950	-11.26%
044	NoMa	\$4,207,137,975	\$4,369,275,138	\$162,137,163	3.85%
046	SW Waterfront	\$6,213,206,618	\$6,662,027,705	\$448,821,087	7.22%
047	Riggs Park	\$143,569,880	\$144,024,825	\$454,945	0.32%
048	Shepherd Park	\$32,187,700	\$33,390,920	\$1,203,220	3.74%
049	Sixteenth Street Heights	\$79,651,280	\$80,789,248	\$1,137,968	1.43%
050	Spring Valley	\$92,300,490	\$89,692,820	-\$2,607,670	-2.83%
051	Takoma	\$162,183,390	\$169,589,890	\$7,406,500	4.57%
052	Trinidad	\$114,574,117	\$119,499,492	\$4,925,375	4.30%
053	Wakefield	\$11,171,130	\$11,173,320	\$2,190	0.02%
054	Wesley Heights	\$88,368,530	\$94,251,680	\$5,883,150	6.66%
055	Woodley	\$11,250 \$435,630,750	\$11,250 \$444 135 169	\$0	0.00%
056 059	Woodridge	\$435,639,750 \$1,585,680	\$441,135,168 \$1,585,680	\$5,495,418	1.26%
	Rail Road Tracks	\$1,585,680 \$1,768,410	\$1,585,680 \$1,774,380	\$0 \$5.070	0.00%
063 064	North Anacostia Park Anacostia Park	\$1,768,410 \$219,000	\$1,774,380 \$219,000	\$5,970 \$0	0.34%
064 066	Fort Lincoln	\$219,000 \$61,202,360	\$219,000 \$60,986,290	\$0 -\$216,070	0.00% -0.35%
068	Bolling AFB & Naval Research	\$29,406,030	\$29,406,030	-\$216,070 \$0	0.00%
069	D.C. Village	\$458,370	\$452,600	-\$5,770	-1.26%
073	Washington Navy Yard	\$733,491,550	\$752,444,460	\$18,952,910	2.58%
	Totals:	\$88,605,617,733	\$94,029,824,492	\$5,424,206,759	6.12%

Real Property Assessment Division 2016 Base Change EXEMPT

			Tatal Dana		
Neighborhood	Name	2015	Total Base 2016	Difference	% Change
001	American University Park	\$450,512,140	\$499,193,973	\$48,681,833	10.81%
002	Anacostia	\$75,466,430	\$75,790,030	\$323,600	0.43%
003	Barry Farms	\$121,841,390	\$123,399,293	\$1,557,903	1.28%
004	Berkley	\$298,997,810	\$316,359,200	\$17,361,390	5.81%
005	Brentwood	\$236,760,150	\$238,932,850	\$2,172,700	0.92%
006	Brightwood	\$107,670,370	\$109,565,770	\$1,895,400	1.76%
007	Brookland	\$2,463,645,322	\$2,445,148,722	-\$18,496,600	-0.75%
008	Burleith	\$89,715,520	\$87,256,900	-\$2,458,620	-2.74%
009	Capitol Hill	\$210,460,330	\$209,604,030	-\$856,300	-0.41%
010	Central	\$3,947,337,920	\$4,115,840,781	\$168,502,861	4.27%
011	Chevy Chase	\$456,757,430	\$463,395,156	\$6,637,726	1.45%
012	Chillum	\$60,074,550	\$60,882,471	\$807,921	1.34%
013	Cleveland Park	\$196,287,720	\$200,143,640	\$3,855,920	1.96%
014	Colonial Village	\$58,224,570	\$58,290,810	\$66,240	0.11%
015	Columbia Heights	\$1,293,989,470	\$1,315,858,750	\$21,869,280	1.69%
016	Congress Heights	\$531,981,370	\$535,475,980	\$3,494,610	0.66%
017	Crestwood	\$55,073,490	\$55,350,100	\$276,610	0.50%
018	Deanwood	\$340,327,240	\$353,040,000	\$12,712,760	3.74%
019	Eckington	\$112,645,300	\$110,349,793	-\$2,295,507	-2.04%
020	Foggy Bottom	\$4,173,560,380	\$4,298,175,600	\$124,615,220	2.99%
021	Forest Hills	\$602,949,570	\$600,126,816	-\$2,822,754	-0.47%
022	Fort Dupont Park	\$118,234,950	\$118,956,870	\$721,920	0.61%
023	Foxhall	\$412,100	\$425,380	\$13,280	3.22%
024	Garfield	\$188,982,280	\$192,521,760	\$3,539,480	1.87%
025	Georgetown	\$716,726,900	\$729,887,930	\$13,161,030	1.84%
026	Glover Park	\$29,248,540	\$29,240,360	-\$8,180	-0.03%
027	Hawthorne	\$758,320	\$812,520	\$54,200	7.15%
028	Hillcrest	\$65,322,300	\$65,427,580	\$105,280	0.16%
029	Kalorama	\$1,120,932,480	\$1,115,679,200	-\$5,253,280	-0.47%
030	Kent	\$89,493,430	\$89,963,400	\$469,970	0.53%
031	LeDroit Park	\$446,784,800	\$448,910,180	\$2,125,380	0.48%
032	Lily Ponds	\$151,161,450	\$152,382,730	\$1,221,280	0.81%
033	Marshall Heights	\$106,040,330 \$765,547,530	\$106,924,630	\$884,300	0.83%
034 035	Massachusetts Av Heights Michigan Park	\$765,547,530	\$771,362,510	\$5,814,980	0.76%
036	Mount Pleasant	\$40,916,120 \$226,986,820	\$41,153,720 \$227,841,335	\$237,600	0.58%
037	North Cleveland Park	\$172,840,310	\$172,562,180	\$854,515	0.38%
038	Observatory Circle	\$524,483,690	\$574,354,710	-\$278,130 \$49,871,020	-0.16% 9.51%
039	Old City I	\$553,719,695	\$558,675,895	\$4,956,200	0.90%
040	Old City II	\$1,988,409,107	\$2,005,817,034	\$17,407,927	0.88%
041	Palisades	\$36,401,640	\$36,241,470	-\$160,170	-0.44%
042	Petworth	\$116,486,130	\$118,626,670	\$2,140,540	1.84%
043	Randle Heights	\$185,199,110	\$187,635,230	\$2,436,120	1.32%
044	NoMa	\$160,457,020	\$160,941,070	\$484,050	0.30%
046	SW Waterfront	\$215,506,290	\$215,428,390	-\$77,900	-0.04%
047	Riggs Park	\$85,499,130	\$87,175,140	\$1,676,010	1.96%
048	Shepherd Park	\$44,325,160	\$44,931,820	\$606,660	1.37%
049	Sixteenth Street Heights	\$145,883,210	\$147,200,200	\$1,316,990	0.90%
050	Spring Valley	\$399,468,860	\$412,369,120	\$12,900,260	3.23%
051	Takoma	\$36,261,520	\$36,598,270	\$336,750	0.93%
052	Trinidad	\$59,527,960	\$62,136,530	\$2,608,570	4.38%
053	Wakefield	\$8,108,770	\$8,285,760	\$176,990	2.18%
054	Wesley Heights	\$80,111,900	\$82,061,729	\$1,949,829	2.43%
055	Woodley	\$106,205,430	\$106,483,080	\$277,650	0.26%
056	Woodridge	\$220,606,450	\$222,042,960	\$1,436,510	0.65%
059	Rail Road Tracks	\$941,710	\$941,710	\$0	0.00%
063	North Anacostia Park	\$1,594,160	\$1,594,160	\$0	0.00%
064	Anacostia Park	\$0	\$0	\$0	0.00%
066	Fort Lincoln	\$3,629,710	\$3,848,160	\$218,450	6.02%
068	Bolling AFB & Naval Research	\$0	\$0	\$0	0.00%
069	D.C. Village	\$5,311,210	\$5,311,210	\$0	0.00%
073	Washington Navy Yard	\$0	\$0	\$0	0.00%
	Totals:	\$25,102,804,994	\$25,614,933,268	\$512,128,274	2.04%

Real Property Assessment Division 2016 Base Change RESIDENTIAL/COMMERCIAL (Classes 1 and 2)

			Total Base		
Neighborhood	Name	2015	2016	Difference	% Change
001	American University Park	\$2,784,208,647	\$2,875,458,764	\$91,250,117	3.28%
002	Anacostia	\$629,491,190	\$658,509,297	\$29,018,107	4.61%
003	Barry Farms	\$266,133,056	\$277,068,985	\$10,935,929	4.11%
004	Berkley	\$1,198,804,790	\$1,238,509,540	\$39,704,750	3.31%
005	Brentwood	\$908,880,311	\$1,054,242,838	\$145,362,527	15.99%
006	Brightwood	\$2,076,339,167	\$2,235,566,778	\$159,227,611	7.67%
007	Brookland	\$3,309,623,504	\$3,526,816,378	\$217,192,874	6.56%
008	Burleith	\$771,295,427	\$808,956,360	\$37,660,933	4.88%
009	Capitol Hill	\$3,734,681,829	\$3,960,707,619	\$226,025,790	6.05%
010	Central	\$55,405,195,909	\$58,945,161,628	\$3,539,965,719	6.39%
011	Chevy Chase	\$5,511,504,414	\$5,741,054,009	\$229,549,595	4.16%
012	Chillum	\$443,534,890	\$486,111,873	\$42,576,983	9.60%
013	Cleveland Park	\$2,971,704,673	\$3,130,166,609	\$158,461,936	5.33%
014	Colonial Village	\$528,690,320	\$547,856,910	\$19,166,590	3.63%
015 016	Columbia Heights	\$6,046,581,063 \$1,212,280,447	\$6,462,489,182 \$1,305,130,025	\$415,908,119	6.88%
017	Congress Heights Crestwood	\$682,062,150	\$710,276,090	\$92,849,578 \$28,213,940	7.66% 4.14%
017	Deanwood	\$1,423,641,082	\$1,572,306,888	\$148,665,806	10.44%
019	Eckington	\$1,691,979,190	\$1,871,585,172	\$179,605,982	10.44%
020	Foggy Bottom	\$4,898,831,013	\$5,213,861,527	\$315,030,514	6.43%
021	Forest Hills	\$3,291,108,764	\$3,368,883,837	\$77,775,073	2.36%
022	Fort Dupont Park	\$804,600,320	\$838,310,250	\$33,709,930	4.19%
023	Foxhall	\$292,096,110	\$305,743,870	\$13,647,760	4.67%
024	Garfield	\$1,836,635,706	\$1,894,986,073	\$58,350,367	3.18%
025	Georgetown	\$7,955,411,372	\$8,747,963,624	\$792,552,252	9.96%
026	Glover Park	\$1,384,806,583	\$1,434,846,420	\$50,039,837	3.61%
027	Hawthorne	\$260,525,060	\$276,472,200	\$15,947,140	6.12%
028	Hillcrest	\$1,067,212,170	\$1,119,761,530	\$52,549,360	4.92%
029	Kalorama	\$3,880,471,645	\$4,009,091,219	\$128,619,574	3.31%
030	Kent	\$1,310,438,270	\$1,336,214,100	\$25,775,830	1.97%
031	LeDroit Park	\$945,302,620	\$1,072,010,290	\$126,707,670	13.40%
032	Lily Ponds	\$391,115,685	\$407,670,205	\$16,554,520	4.23%
033	Marshall Heights	\$344,429,730	\$360,099,030	\$15,669,300	4.55%
034	Massachusetts Av Heights	\$763,287,283	\$782,498,024	\$19,210,741	2.52%
035	Michigan Park	\$351,089,230	\$368,036,410	\$16,947,180	4.83%
036	Mount Pleasant	\$3,592,944,846	\$3,768,128,960	\$175,184,114	4.88%
037	North Cleveland Park	\$1,133,207,584	\$1,184,571,577	\$51,363,993	4.53%
038	Observatory Circle	\$1,858,705,381	\$1,929,782,029	\$71,076,648	3.82%
039 040	Old City I Old City II	\$13,497,140,876	\$14,353,808,600 \$18,680,319,155	\$856,667,724	6.35% 6.04%
040	Palisades	\$17,616,161,793 \$1,128,321,560	\$1,151,411,050	\$1,064,157,362 \$23,089,490	2.05%
041	Petworth	\$2,597,671,518	\$2,798,766,614	\$201,095,096	7.74%
042	Randle Heights	\$1,058,909,000	\$1,081,806,910	\$22,897,910	2.16%
044	NoMa	\$4,687,609,645	\$4,851,782,228	\$164,172,583	3.50%
046	SW Waterfront	\$7,789,607,262	\$8,378,245,395	\$588,638,133	7.56%
047	Riggs Park	\$877,151,730	\$997,725,715	\$120,573,985	13.75%
048	Shepherd Park	\$657,579,240	\$691,628,320	\$34,049,080	5.18%
049	Sixteenth Street Heights	\$1,258,950,890	\$1,327,229,588	\$68,278,698	5.42%
050	Spring Valley	\$1,575,302,925	\$1,597,797,360	\$22,494,435	1.43%
051	Takoma	\$496,196,070	\$526,756,600	\$30,560,530	6.16%
052	Trinidad	\$1,061,881,837	\$1,180,777,752	\$118,895,915	11.20%
053	Wakefield	\$729,331,720	\$762,785,500	\$33,453,780	4.59%
054	Wesley Heights	\$1,686,404,076	\$1,727,422,710	\$41,018,634	2.43%
055	Woodley	\$282,275,310	\$295,668,680	\$13,393,370	4.74%
056	Woodridge	\$1,371,791,860	\$1,481,927,758	\$110,135,898	8.03%
059	Rail Road Tracks	\$1,585,680	\$1,585,680	\$0	0.00%
063	North Anacostia Park	\$1,768,410	\$1,774,380	\$5,970	0.34%
064	Anacostia Park	\$219,000	\$219,000	\$0	0.00%
066	Fort Lincoln	\$463,872,650	\$491,890,390	\$28,017,740	6.04%
068	Bolling AFB & Naval Research	\$39,035,310	\$39,193,150	\$157,840	0.40%
069	D.C. Village	\$458,370	\$452,600	-\$5,770	-1.26%
073	Washington Navy Yard	\$802,710,920	\$821,894,080	\$19,183,160	2.39%
	Totals:	\$187,640,789,083	\$199,069,775,335	\$11,428,986,252	6.09%

2016 Residential Change Statistics by Ward

Residential (UC 011, 012, 013, 023, 024)

				,,, - ,	/		
Ward	Count	2015	2016	Difference	Overall Change	Avg Change	
1	8,270	\$5,367,732,385	\$5,929,413,160	\$561,680,775	10.46%	11.24%	
2	5,993	\$8,180,838,063	\$8,726,178,500	\$545,340,437	6.67%	7.64%	
3	14,467	\$17,374,258,250	\$18,060,776,186	\$686,517,936	3.95%	4.67%	
4	20,395	\$10,548,388,224	\$11,262,082,140	\$713,693,916	6.77%	8.01%	
5	18,073	\$6,712,816,260	\$7,538,079,980	\$825,263,720	12.29%	12.54%	
6	15,841	\$10,074,080,993	\$11,025,339,230	\$951,258,237	9.44%	10.40%	
7	14,868	\$3,153,344,812	\$3,441,277,260	\$287,932,448	9.13%	9.41%	
8	8,266	\$1,621,287,310	\$1,784,523,300	\$163,235,990	10.07%	10.77%	
Total:	106,173	\$63,032,746,297	\$67,767,669,756	\$4,734,923,459	7.51%	9.32%	

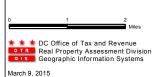
Condominium (UC 016, 017)

Ward	Count	2015	2016	Difference	Overall Change	Avg Change
1	8,698	\$3,872,246,510	\$3,994,146,350	\$121,899,840	3.15%	3.64%
2	16,172	\$8,088,854,743	\$8,337,627,800	\$248,773,057	3.08%	2.99%
3	9,080	\$3,396,801,836	\$3,451,155,130	\$54,353,294	1.60%	1.76%
4	1,557	\$393,030,050	\$412,668,480	\$19,638,430	5.00%	5.37%
5	2,599	\$658,408,700	\$701,116,770	\$42,708,070	6.49%	7.16%
6	7,195	\$2,674,310,910	\$2,803,814,200	\$129,503,290	4.84%	5.25%
7	2,025	\$196,277,930	\$210,550,310	\$14,272,380	7.27%	9.36%
8	2,038	\$205,103,960	\$207,965,060	\$2,861,100	1.39%	0.83%
Total:	49,364	\$19,485,034,639	\$20,119,044,100	\$634,009,461	3.25%	3.68%

All (Res and Condo Combined)

Ward	Count	2015	2016	Difference	Overall Change	Avg Change
1	16,968	\$9,239,978,895	\$9,923,559,510	\$683,580,615	7.40%	7.34%
2	22,165	\$16,269,692,806	\$17,063,806,300	\$794,113,494	4.88%	4.25%
3	23,547	\$20,771,060,086	\$21,511,931,316	\$740,871,230	3.57%	3.55%
4	21,952	\$10,941,418,274	\$11,674,750,620	\$733,332,346	6.70%	7.83%
5	20,672	\$7,371,224,960	\$8,239,196,750	\$867,971,790	11.78%	11.86%
6	23,036	\$12,748,391,903	\$13,829,153,430	\$1,080,761,527	8.48%	8.79%
7	16,893	\$3,349,622,742	\$3,651,827,570	\$302,204,828	9.02%	9.41%
8	10,304	\$1,826,391,270	\$1,992,488,360	\$166,097,090	9.09%	8.80%
Total:	155,537	\$82,517,780,936	\$87,886,713,856	\$5,368,932,920	6.51%	7.53%







NBHD	NAME	Residential	Commercial	Exempt	Total
001	AMERICAN UNIV. PARK	2,688	95	35	2,818
002	ANACOSTIA	2,057	177	82	2,316
003	BARRY FARMS	869	51	85	1,005
004	BERKLEY	816	7	44	867
005	BRENTWOOD	913	347	154	1,414
006	BRIGHTWOOD	4,336	141	114	4,591
007	BROOKLAND	6,955	353	407	7,715
800	BURLEITH	855	007	5	860
009	CAPITOL HILL CENTRAL	4,109	327	68	4,504
010 011	CHEVY CHASE	6,917 5,771	1,258 146	185 61	8,360 5,978
012	CHILLUM	1,030	64	70	1,164
013	CLEVELAND PARK	3,210	52	36	3,298
014	COLONIAL VILLAGE	644	02	20	664
015	COLUMBIA HEIGHTS	10,141	527	430	11,098
016	CONGRESS HEIGHTS	5,328	163	277	5,768
017	CRESTWOOD	819	1	26	846
018	DEANWOOD	6,848	291	584	7,723
019	ECKINGTON	2,344	142	53	2,539
020	FOGGY BOTTOM	2,174	152	124	2,450
021	FOREST HILLS	3,327	54	63	3,444
022 023	FORT DUPONT PARK FOXHALL	3,558 370	54 1	167 1	3,779 372
023	GARFIELD	1,376	54	224	1,654
025	GEORGETOWN	4,619	624	173	5,416
026	GLOVER PARK	2,581	59	31	2,671
027	HAWTHORNE	313		1	314
028	HILLCREST	4,459	95	91	4,645
029	KALORAMA	3,698	132	221	4,051
030	KENT	903	30	22	955
031	LEDROIT PARK	1,867	33	37	1,937
032	LILY PONDS	1,521	53	71	1,645
033	MARSHALL HEIGHTS	1,850	19	234	2,103
034	MASS. AVE. HEIGHTS	193	2	54	249
035 036	MICHIGAN PARK MOUNT PLEASANT	936	232	14 74	961
037	N. CLEVELAND PARK	4,503 881	42	9	4,809 932
038	OBSERVATORY CIRCLE	1,743	41	77	1,861
039	OLD CITY I	16,026	998	222	17,246
040	OLD CITY II	20,012	1,265	378	21,655
041	PALISADES	1,412	54	24	1,490
042	PETWORTH	6,457	266	112	6,835
043	RANDLE HEIGHTS	3,906	70	261	4,237
044	NOMA	497	173	21	691
046	SW WATERFRONT	3,370	112	97	3,579
047	RIGGS PARK	2,797	24	55	2,876
048 049	SHEPHERD PARK 16TH ST. HEIGHTS	1,001 2,300	34 121	15 89	1,050 2,510
050	SPRING VALLEY	938	10	37	985
051	TAKOMA	902	57	87	1,046
052	TRINIDAD	3,090	114	81	3,285
053	WAKEFIELD	971	15	4	990
054	WESLEY HEIGHTS	3,031	4	22	3,057
055	WOODLEY	209	1	3	213
056	WOODRIDGE	3,052	394	87	3,533
059	RAIL ROAD TRACKS		3	4	7
060	N. ROCK CREEK PARK				
061	NATL. ZOO				
062 063	S. ROCK CREEK PARK N. ANACOSTIA PARK		4	40	4.4
064	S. ANACOSTIA PARK		1	10	14
065	NATIONAL ARBORETUM		1		<u></u>
066	FORT LINCOLN	1,238	6	14	1,258
067	ST. ELIZABETHS HOSPITAL	1,200	3	1-7	1,200
068	BOLLING AFB & NAVAL RES	9	20		29
069	D.C. VILLAGE		1	1	2
070	FORT DRIVE				
071	GLOVER-ARCHBOLD PWY				
072	MALL				
073	WASHINGTON NAVY YARD	4	25		29
L	TOTALS:	178,744	9,602	6,048	194,394

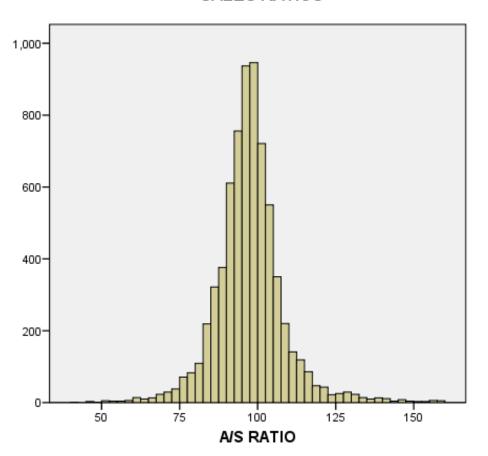
^{*}DC and US (5,363) not included in Base Report Statistics **PI accounts (313) not included in Base Report Statistics

Preliminary 2016 Performance Report

2014 SALES RATIOS CITY-WIDE

PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
All	7,311	1,158,470	525,000	97.1	97.2	96.0	8.1	6,078	1,233	1.01
2014 SALES RATIOS BY PROPERTY TYPE: CITY-WIDE										
PROPERTY TYPE	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
Residential Commercial	7,038 273	637,659 14,585,084	516,568 1,200,000	97.2 93.0	97.5 91.0	96.5 95.5	7.9 15.4	5,852 226	1,186 47	1.01

CITY-WIDE RESIDENTIAL SALES RATIOS



Mean =97.48 Std. Dev. =11.103 N =7,038

2014 SALES RATIOS BY NEIGHBORHOOD: SINGLE-FAMILY

NB	NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
1	AMERICAN UNIVERSITY	70	987,668	927,500	88.9	89.4	88.8	9.7	65	5	1.01
	ANACOSTIA	69	263,106	279,000	86.6	87.8	83.7	18.4	58	11	1.05
3	BARRY FARMS	5	252,072	250,000	70.3	69.2	68.5	5.3	5	0	1.01
4	BERKELEY	31	2,167,738	1,590,000	93.5	93.0	92.9	11.2	25	6	1.00
5	BRENTWOOD	18	408,677	392,500	68.5	71.7	71.4	22.0	18	0	1.00
6	BRIGHTWOOD	140	508,615	480,000	85.1	86.4	85.5	12.1	130	10	1.01
7	BROOKLAND	213	549,405	560,000	88.5	88.6	87.7	11.0	196	17	1.01
8	BURLEITH	30	1,081,517	922,500	85.8	85.0	83.5	10.7	29	1	1.02
	CAPITOL HILL	125	1,007,898	925,000	86.4	88.3	87.2	10.9	116	9	1.01
	CENTRAL	6		1,227,500	90.9	90.1	90.8	4.2	6	0	.99
	CHEVY CHASE	171	1,036,947	927,000	89.5	90.2	90.1	9.6	153	18	1.00
	CHILLUM	28	493,975	481,375	84.8	84.6	83.7	10.7	26	2	1.01
	CLEVELAND PARK	36	1,729,743		84.7	86.1	83.6	11.1	33	3	1.03
	COLONIAL VILLAGE	21	878,281	775,000	94.2	95.1	93.5	12.8	18	3	1.02
	COLUMBIA HEIGHTS	211	646,434	632,000	85.0	84.3	83.4	12.4	199	12	1.01
	CONGRESS HEIGHTS	69	233,028	240,000	76.5	82.1	79.0	21.4	56	13	1.04
	CRESTWOOD	37	863,336	809,000	95.2	93.4	92.8	10.7	32	5	1.01
	DEANWOOD	149	237,330	235,000	81.5	81.8	80.4	17.0	139	10	1.02
	ECKINGTON	61	602,011	610,000	79.3	78.7	78.6	10.9	60	1	1.00
	FOGGY BOTTOM	3	944,333	943,000	81.8	82.1	81.7	3.5	3	0	1.00
	FOREST HILLS	25		1,165,000	92.0	90.4	89.4	13.3	21	4	1.01
	FORT DUPONT PARK	58	234,845	230,000	85.1	84.8	81.3	16.5	52	6	1.04
	FOXHALL	20	919,080	873,500	85.8	86.3	86.4	6.9	19	1	1.00
	GARFIELD	17		1,203,000	89.0	89.1	88.7	10.1	15	2	1.01
	GEORGETOWN	124		1,460,000	89.7	91.1	88.8	11.4	106	18	1.03
	GLOVER PARK	35	853,921	880,000	86.5	84.0	84.7	9.6	34	1	.99
	HAWTHORNE	7		1,012,500	89.2	91.9	91.6	8.2	7	0	1.00
	HILLCREST	53	357,485	365,000	83.5	84.5	82.9	14.4	48	5	1.02
	KALORAMA	27		1,825,000	90.1	88.2	88.4	10.5	25	2	1.00
	KENT	31	1,418,411		92.7	90.9	85.7	14.0	26	5	1.06
	LEDROIT PARK	51	759,055	740,000	80.8	78.9	77.4	13.0	50	1	1.02
	LILY PONDS	61	268,940	284,900	92.8	87.8	87.6	12.4	57 25	4	
	MARSHALL HEIGHTS	41	262,764	285,000	93.5	90.9	89.5	15.0	35	6	1.02
	MASS. AVE. HEIGHTS	7		1,900,000		102	104.9	10.7	4	3	.97
	MICHIGAN PARK	25	447,398	440,000 861,000	93.7 85.3	92.4	91.4	8.8	22	3	1.01
	MOUNT PLEASANT	73	918,415	925,000		86.6	85.1	12.2	68	5 1	1.02 1.01
	N. CLEVELAND PARK	23 23	1,118,058	•	88.4	87.1 88.9	86.2 85.4	10.9	22	1 4	1.01
	OBSERVATORY CIRCLE OLD CITY #1	600	663,285	1,675,000 640,000	90.5 85.6	85.7	85.2	19.1 11.1	19 559		1.04
	OLD CITY #1 OLD CITY #2	215	-	860,000		81.2	81.5	13.4	210	41 5	1.01
	PALISADES	38	1,026,193	•	81.0 92.4	92.7	92.7	7.3	35	3	1.00
	PETWORTH	255	561,564	1,182,500 559,000				11.0	238	17	
	RANDLE HEIGHTS	255 71	275,044		91.8	91.5		16.6	236 56		1.01
	SW WATERFRONT	9	777,278	•		85.2	85.1	8.2	9	0	1.02
	RIGGS PARK	84	345,406		80.3	81.9	81.3	13.6	83	1	1.01
	SHEPHERD PARK	26	718,906	677,500	90.9	93.1	91.7	11.0	21	5	1.01
	16TH STREET HEIGHTS	71	696,067	691,000	85.1	86.1	85.8	14.1	64	7	1.01
	SPRING VALLEY	45	1,625,413		94.9	95.6	94.3	11.9	34	11	1.01
	TAKOMA PARK	56	538,003		94.0	94.9	95.1	10.0	46	10	1.00
	TRINIDAD	134	432,055	426,250		82.7	82.1	12.1	130	4	1.01
	WAKEFIELD	9		1,035,000	89.0	90.3	90.2	4.1	9	0	1.00
	WESLEY HEIGHTS		1,625,291				95.9	12.4	25	7	.99
	WOODLEY		1,589,800				92.1	8.4	5	0	1.00
	WOODRIDGE		466,367				84.7		75	4	1.01
	FORT LINCOLN	95		489,485			90.6	3.7	95	0	1.00
30	2 3212 221100211	23	100,000	100,100	, , , ,	, , ,	20.0	5.,	, ,	O	1.00
TOT	TALS:										
	OPERTY TYPE SALES	AVE PR	ICE MED P	RICE MEDIA	AN MEAI	NEI	IGHTED C	!OD <	105 >	105	PRD
	ngle-Family 4,018	743,		,000 86.8			86.7 12		691	327	1.00
		- /						- /			

2014 SALES RATIOS BY NEIGHBORHOOD: CONDOMINIUMS

NB	NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105 >	105	PRD
1	AMERICAN UNIVERSITY	14	557,964	481,000	92.8	92.1	90.5	6.5	14	0	1.02
2	ANACOSTIA	7	187,725	181,000	100.0	90.7	77.7	21.8	5	2	1.17
3	BARRY FARMS	31	287,445	305,400	110.7	104	104.0	8.6	12	19	1.00
4	BERKELEY	6	508,333	580,000	95.2	94.6	95.3	3.5	6	0	.99
5	BRENTWOOD	12	173,296	169,750	73.6	79.5	78.5	24.8	11	1	1.01
6	BRIGHTWOOD	30	304,187	318,250	86.3	88.4	85.0	17.6	27	3	1.04
7	BROOKLAND	43	253,121	230,000	95.0	90.6	90.5	9.7	40	3	1.00
9	CAPITOL HILL	43	352,969	333,000	96.7	98.6	98.6	8.2	33	10	1.00
10	CENTRAL	455	732,612	580,000	91.5	91.4	88.2	8.4	423	32	1.04
11	CHEVY CHASE	29	585,724	422,500	99.6	101	104.1	10.5	17	12	.97
12	CHILLUM	9	261,634	265,000	95.4	94.4	93.9	4.8	8	1	1.01
13	CLEVELAND PARK	78	399,852	399,999	94.9	95.7	94.9	7.3	69	9	1.01
15	COLUMBIA HEIGHTS	339	411,166	350,000	95.0	92.9	93.4	9.0	308	31	1.00
16	CONGRESS HEIGHTS	6	75,417	51,500	122.2	123	105.8	19.6	2	4	1.17
18	DEANWOOD	8	129,188	111,750	68.2	74.5	71.5	27.9	7	1	1.04
19	ECKINGTON	79	385,457	365,000	95.0	93.4	91.5	6.3	73	6	1.02
20	FOGGY BOTTOM	47	294,947	290,000	96.5	96.2	95.7	10.8	35	12	1.00
21	FOREST HILLS	44	309,401	312,450	96.0	96.5	96.4	6.8	39	5	1.00
24	GARFIELD	31	2,062,057	397,000	93.7	94.4	83.8	7.1	28	3	1.13
25	GEORGETOWN	69	832,232	575,250	93.4	94.5	95.9	10.5	55	14	.99
26	GLOVER PARK	31	327,265	333,000	96.8	97.3	96.5	6.1	27	4	1.01
28	HILLCREST	23	110,500	99,000	96.9	97.8	95.0	15.5	18	5	1.03
29	KALORAMA	113	543,187	475,000	93.9	94.3	93.2	8.2	97	16	1.01
31	LEDROIT PARK	37	476,327	440,000	95.0	92.2	92.5	6.1	36	1	1.00
33	MARSHALL HEIGHTS	1	49,000	49,000	145.9	146	145.9	.0	0	1	1.00
36	MOUNT PLEASANT	141	485,157	470,000	95.1	94.4	94.3	7.2	127	14	1.00
37	N. CLEVELAND PARK	3	405,000	387,500	92.1	93.4	93.3	2.6	3	0	1.00
38	OBSERVATORY CIRCLE	52	525,500	440,000	92.8	91.9	88.2	8.9	45	7	1.04
39	OLD CITY #1	223	448,192	420,000	94.1	92.2	92.4	8.4	206	17	1.00
40	OLD CITY #2	739	481,841	443,000	93.9	93.6	93.0	8.1	657	82	1.01
41	PALISADES	10	242,872	237,000	91.6	95.4	95.0	7.7	9	1	1.00
42	PETWORTH	48	341,431	302,450	96.7	96.4	95.4	7.2	45	3	1.01
43	RANDLE HEIGHTS	1	58,000	58,000	134.7	135	134.7	.0	0	1	1.00
46	SW WATERFRONT	117	338,457	312,000	87.2	86.7	86.0	7.7	116	1	1.01
49	16TH STREET HEIGHTS	18	315,125	302,500	97.6	92.7	94.2	7.5	17	1	.98
52	TRINIDAD	14	246,889	225,824	93.3	82.6	83.6	13.1	14	0	.99
53	WAKEFIELD	15	351,760	314,000	89.1	86.5	86.2	8.7	15	0	1.00
54	WESLEY HEIGHTS	41	416,145	449,000	90.7	92.2	92.9	10.2	34	7	.99
56	WOODRIDGE	4	176,725	121,000	111.8	108	103.3	5.1	1	3	1.05
66	FORT LINCOLN	9	266,356	267,500	79.1	87.3	85.5	17.0	7	2	1.02
	TALS: DPERTY TYPE SALES	AVE PR	ICE MED PI	RICE MEDIA	AN MEAI	N WE	IGHTED C	OD <	105 >	105	PRD

PROPERTY TYPE SALES AVE PRICE MED PRICE MEDIAN MEAN WEIGHTED COD < 105 > 105 PRD Condominium 3,020 496,731 415,000 93.9 93.1 91.6 8.9 2,686 334 1.02

2014 SALES RATIOS BY NEIGHBORHOOD: MULTI-FAMILY

NB	NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105 2	> 105	PRD
2	ANACOSTIA	3	588,588	710,000	100.3	90.5	87.7	10.4	3	0	1.03
3	BARRY FARMS	1	3,460,000	3,460,000	107.4	107	107.4	.0	0	1	1.00
7	BROOKLAND	2	3,751,000	3,751,000	93.8	93.8	95.9	2.7	2	0	.98
9	CAPITOL HILL	3	1,648,760	1,500,000	63.7	70.3	63.4	27.6	3	0	1.11
10	CENTRAL	1	1,410,000	1,410,000	100.0	100	100.0	.0	1	0	1.00
11	CHEVY CHASE	1	7,225,000	7,225,000	75.6	75.6	75.6	.0	1	0	1.00
13	CLEVELAND PARK	1	7,400,000	7,400,000	79.6	79.6	79.6	.0	1	0	1.00
15	COLUMBIA HEIGHTS	7	2,335,000	1,950,000	79.5	78.8	81.4	11.7	7	0	.97
16	CONGRESS HEIGHTS	11	943,191	971,000	96.7	94.2	95.4	12.4	9	2	.99
18	DEANWOOD	2	608,750	608,750	89.2	89.2	93.0	18.2	1	1	.96
19	ECKINGTON	1	2,950,000	2,950,000	52.9	52.9	52.9	.0	1	0	1.00
22	FORT DUPONT PARK	1	549,000	549,000	87.1	87.1	87.1	.0	1	0	1.00
28	HILLCREST	1	2,150,000	2,150,000	105.9	106	105.9	.0	0	1	1.00
29	KALORAMA	3	7,586,667	1,585,000	83.5	74.8	58.6	12.6	3	0	1.28
33	MARSHALL HEIGHTS	3	705,833	700,000	103.8	100	100.7	6.2	2	1	.99
36	MOUNT PLEASANT	2	2,820,500	2,820,500	90.4	90.4	84.4	10.3	2	0	1.07
39	OLD CITY #1	3	948,900	875,000	96.1	99.1	91.2	15.3	2	1	1.09
40	OLD CITY #2	5	23,485,000	2,825,000	74.5	82.1	75.3	25.6	4	1	1.09
42	PETWORTH	4	2,116,250	2,105,000	115.6	112	109.4	7.5	1	3	1.02
43	RANDLE HEIGHTS	5	866,482	550,000	127.1	116	121.4	18.3	2	3	.95
48	SHEPHERD PARK	1	1,030,000	1,030,000	79.3	79.3	79.3	.0	1	0	1.00
52	TRINIDAD	1	405,000	405,000	89.0	89.0	89.0	.0	1	0	1.00
56	WOODRIDGE	1	850,000	850,000	113.3	113	113.3	.0	0	1	1.00
ΤΩ	TALS:										
_	OPERTY TYPE SALES	AVE PR	ICE MED PE	RICE MEDIA	AN MEAI	NE.	IGHTED C	OD <	105 >	105	PRD
	lti-Family 63	3,701,	-	-			-	3.0	48	15	1.15

2014 SALES RATIOS BY NEIGHBORHOOD: COMMERCIAL

NB	NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105 >	105	PRD
1	AMERICAN UNIVERSITY	1	2.150.000	2,150,000	96.6	96.6	96.6	. 0	1	0	1.00
	ANACOSTIA	1		263,520		101	101.1	.0	1	0	1.00
	BARRY FARMS	2	,	1,975,000	54.0	54.0	37.3	45.9	2	0	1.45
	BRENTWOOD	11		2,200,000	58.5	66.2	54.3	47.1	9	2	1.22
	BRIGHTWOOD		32,100,000	32100000		115	115.0	.0	0	1	1.00
	BROOKLAND	8	1,451,250	800,000	56.8	57.0	38.1	38.3	8	0	1.50
	CAPITOL HILL	6	1,377,833	872,500	61.6	66.0	68.1	35.6	6	0	.97
10	CENTRAL	39	83,949,231	16500000	86.4	81.2	82.9	19.7	35	4	.98
12	CHILLUM	1	200,000	200,000	52.6	52.6	52.6	. 0	1	0	1.00
	COLUMBIA HEIGHTS	18	1,036,105	550,000	88.2	84.1	65.8	20.9	15	3	1.28
	CONGRESS HEIGHTS	5	245,400	240,000		91.3	84.7	22.7	3	2	1.08
18	DEANWOOD	3	938,333	925,000	76.7	74.9	56.7	29.6	2	1	1.32
19	ECKINGTON	4	915,000	925,000	70.2	71.8	72.4	4.8	4	0	.99
20	FOGGY BOTTOM	3	832,333	512,000	74.2	75.2	72.5	6.0	3	0	1.04
21	FOREST HILLS	2	12,237,500	12237500	72.9	72.9	96.3	36.2	2	0	.76
24	GARFIELD	1		2,100,000	71.7	71.7	71.7	.0	1	0	1.00
25	GEORGETOWN	15		1,300,000	75.5	68.6	90.2	30.4	14	1	.76
26	GLOVER PARK	1	1,150,000	1,150,000	59.6	59.6	59.6	.0	1	0	1.00
29	KALORAMA	2		1,725,000	84.3	84.3	104.8	54.3	1	1	.80
30	KENT	1	14,925,000	14925000	106.8	107	106.8	.0	0	1	1.00
31	LEDROIT PARK	1	890,000	890,000	52.6	52.6	52.6	.0	1	0	1.00
32	LILY PONDS	1	3,100,000	3,100,000	60.3	60.3	60.3	.0	1	0	1.00
35	MICHIGAN PARK	2	225,000	225,000	71.1	71.1	69.3	23.0	2	0	1.03
36	MOUNT PLEASANT	8	3,206,250	1,162,500	55.8	67.9	65.2	33.6	7	1	1.04
37	N. CLEVELAND PARK	1	710,000	710,000	37.4	37.4	37.4	.0	1	0	1.00
38	OBSERVATORY CIRCLE	1	876,960	876,960	100.0	100	100.0	.0	1	0	1.00
39	OLD CITY #1	20	2,338,095	852,500	73.6	77.7	90.0	37.4	15	5	.86
40	OLD CITY #2	18	3,205,308	1,450,000	57.5	73.0	73.9	39.5	16	2	.99
41	PALISADES	1	2,550,000	2,550,000	107.8	108	107.8	.0	0	1	1.00
42	PETWORTH	8	440,308	450,000	88.9	89.1	88.7	15.7	7	1	1.01
48	SHEPHERD PARK	1	2,100,000	2,100,000	74.8	74.8	74.8	.0	1	0	1.00
49	16TH STREET HEIGHTS	3	886,667	835,000	72.8	67.5	67.1	13.2	3	0	1.01
51	TAKOMA PARK	4	3,178,059	785,000	108.6	97.8	48.3	33.5	2	2	2.02
52	TRINIDAD	3		625,000	38.2	44.4	32.3	30.8	3	0	1.37
53	WAKEFIELD	1	1,350,000	1,350,000	93.7	93.7	93.7	.0	1	0	1.00
56	WOODRIDGE	12	1,063,250	675,000	86.3	79.6	82.3	18.6	11	1	.97
	TALS:										
	OPERTY TYPE SALES	AVE PI								105	PRD
Con	mmercial 210	17,850	,285 1,200	,000 74.9	76.2	L	82.6 30	. 2	181	29	.92

2014 SALES RATIOS BY NEIGHBORHOOD: SINGLE-FAMILY

NB	NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105 >	> 105	PRD
1	AMERICAN UNIVERSITY	70	987,668	927,500	97.3	96.9	96.0	5.7	63	7	1.01
2	ANACOSTIA	69	263,106	279,000	96.0	98.6	94.7	13.2	55	14	1.04
3	BARRY FARMS	5	252,072	250,000	97.6	95.6	95.1	3.8	5	0	1.00
	BERKELEY	31	2,167,738		98.0	98.4	98.1	7.6	25	6	1.00
	BRENTWOOD	18	408,677	392,500	90.8	90.6	90.2	7.8	18	0	1.00
	BRIGHTWOOD	140	508,615	480,000	97.7	98.2	96.9	9.2	110	30	1.01
	BROOKLAND	213 30	549,405 1,081,517	560,000 922,500	98.0 99.2	99.4 98.3	98.2 98.0	8.3 4.8	168 26	45 4	1.01
	BURLEITH CAPITOL HILL	125	1,001,517	922,500	98.9	99.7	98.2	8.7	92	33	1.00
	CENTRAL	6	1,446,042	-	98.7	97.7	98.0	1.9	6	0	1.01
	CHEVY CHASE	171	1,036,947	927,000	98.7	98.7	98.6	5.7	141	30	1.00
	CHILLUM	28	493,975	481,375	96.5	95.5	94.5	9.5	25	3	1.01
13	CLEVELAND PARK	36	1,729,743	1,316,125	98.1	99.7	97.4	8.0	25	11	1.02
14	COLONIAL VILLAGE	21	878,281	775,000	99.9	100	98.7	11.9	14	7	1.02
	COLUMBIA HEIGHTS	211	646,434	632,000	96.4	96.3	95.2	10.3	167	44	1.01
	CONGRESS HEIGHTS	69	233,028	240,000	97.5	99.5	96.1	15.3	47	22	1.04
	CRESTWOOD	37	863,336	809,000	99.5	98.6	98.2	7.7	28	9	1.00
	DEANWOOD	149	237,330	235,000	98.6	99.5	98.2	11.0	101	48	1.01
	ECKINGTON	61	602,011	610,000	94.7	94.9	94.4	5.1	58	3	1.01
	FOGGY BOTTOM	3	944,333	943,000	96.4	97.4	97.2	1.3	3	0	1.00
	FOREST HILLS FORT DUPONT PARK	25 58	1,331,919 234,845		98.4 95.8	99.1	98.8 93.6	2.6 13.2	23 45	2 13	1.00
	FOXHALL	20	919,080	230,000 873,500	99.5	96.5 98.3	93.8	4.4	19	13	1.03
	GARFIELD	20 17	1,251,179		98.1	98.2	97.8	6.4	14	3	1.01
	GEORGETOWN	124	1,819,580		98.2	99.3	98.4	5.1	103	21	1.01
	GLOVER PARK	35	853,921	880,000	98.1	98.2	98.1	2.2	33	2	1.00
	HAWTHORNE	7	1,023,786		98.9	99.6	98.8	5.6	6	1	1.01
	HILLCREST	53	357,485	365,000	98.8	95.5	95.0	9.3	41	12	1.00
	KALORAMA	27	2,112,484	-	98.0	98.2	98.0	2.5	26	1	1.00
30	KENT	31	1,418,411		97.2	97.9	95.8	9.6	24	7	1.02
31	LEDROIT PARK	51	759,055	740,000	94.1	93.8	92.1	8.0	48	3	1.02
32	LILY PONDS	61	268,940	284,900	98.1	97.3	97.0	7.0	55	6	1.00
33	MARSHALL HEIGHTS	41	262,764	285,000	98.8	98.0	96.0	10.9	32	9	1.02
	MASS. AVE. HEIGHTS	7		1,900,000		99.5	100.3	3.6	6	1	.99
	MICHIGAN PARK	25	447,398	440,000	98.2	99.3	98.1	6.6	21	4	1.01
	MOUNT PLEASANT	73	918,415	861,000	99.4	97.9	96.7	10.3	53	20	1.01
	N. CLEVELAND PARK	23	1,118,058	925,000	97.5	97.2	96.2	6.4	19	4	1.01
	OBSERVATORY CIRCLE OLD CITY #1	23 600	1,576,565	640,000	98.8	103 98.6	101.3 97.7	7.0 7.4	18 489	5 111	1.01
	OLD CITY #2	215	663,285	860,000	98.1 96.8	96.5	95.6	8.9	409 177	38	1.01
	PALISADES	38	1,286,284		98.6	97.5	97.3	4.9	35	3	1.01
	PETWORTH	255	561,564	559,000	97.0	97.0	96.4	8.6	208	47	1.01
	RANDLE HEIGHTS	71	275,044	269,900	99.2	99.6	98.0	10.9	51	20	1.02
	SW WATERFRONT	9	777,278	775,000	98.7	97.2	97.3	6.4	7	2	1.00
47	RIGGS PARK	84	345,406	338,500	94.7	95.3	94.0	9.6	68	16	1.01
48	SHEPHERD PARK	26	718,906	677,500	96.1	98.9	97.3	10.4	19	7	1.02
49	16TH STREET HEIGHTS	71	696,067	691,000	98.6	95.8	95.2	11.0	56	15	1.01
	SPRING VALLEY	45	1,625,413	1,450,000	99.5	101	100.8	6.6	33	12	1.00
	TAKOMA PARK	56	538,003	533,363	99.4	100	99.7	8.4	42	14	1.01
	TRINIDAD	134	432,055	426,250	96.1	96.2	95.0	10.5	103	31	1.01
	WAKEFIELD	9		1,035,000	98.2	98.2	98.3	1.6	9	0	1.00
	WESLEY HEIGHTS	32	1,625,291		97.9	98.6	99.1	8.8	25	7	1.00
	WOODLEY	5	1,589,800		97.2	97.9	97.7	6.7	3	2	1.00
	WOODRIDGE	79 95	466,367	•	95.7 97.7	95.6	94.7	6.8 3.8	71	8 7	1.01
00	FORT LINCOLN	95	489,805	489,485	97.7	98.2	98.0	3.8	88	/	1.00
т∩г	TALS:										
	OPERTY TYPE SALES	AVE PR	ICE MED PF	RICE MEDIA	AN MEAI	N WE	GHTED C	OD <	105 >	105	PRD
	ngle-Family 4,018	743,							247	771	1.01
		- /					_	- /			-

2014 SALES RATIOS BY NEIGHBORHOOD: CONDOMINIUMS

NB	NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD <	< 105 >	105	PRD
1	AMERICAN UNIVERSITY	14	557,964	481,000	95.9	95.2	93.6	6.6	13	1	1.02
	ANACOSTIA	7	187,725	181,000		106	94.5	20.5	3	4	1.12
	BARRY FARMS	31	287,445	305,400		106	105.1	7.2	12	19	1.01
4	BERKELEY	6	508,333	580,000	98.2	97.5	98.2	3.6	6	0	.99
5	BRENTWOOD	12	173,296	169,750	96.1	91.5	91.0	11.0	11	1	1.01
6	BRIGHTWOOD	30	304,187	318,250	97.5	99.1	97.1	10.1	24	6	1.02
7	BROOKLAND	43	253,121	230,000	95.0	95.1	94.9	6.4	39	4	1.00
9	CAPITOL HILL	43	352,969	333,000	98.5	99.7	99.6	5.9	38	5	1.00
10	CENTRAL	455	732,612	580,000	94.2	93.6	90.4	8.4	407	48	1.04
11	CHEVY CHASE	29	585,724	422,500	96.8	97.6	100.3	8.2	24	5	.97
12	CHILLUM	9	261,634	265,000	99.1	98.4	98.0	4.2	8	1	1.00
13	CLEVELAND PARK	78	399,852	399,999	98.3	98.6	98.0	4.8	70	8	1.01
15	COLUMBIA HEIGHTS	339	411,166	350,000	97.4	98.2	97.6	7.3	279	60	1.01
16	CONGRESS HEIGHTS	6	75,417	51,500	122.2	123	105.8	19.6	2	4	1.17
18	DEANWOOD	8	129,188	111,750	91.5	90.8	87.0	15.3	6	2	1.04
19	ECKINGTON	79	385,457	365,000	97.0	96.8	95.7	5.1	74	5	1.01
20	FOGGY BOTTOM	47	294,947	290,000	99.0	99.6	99.6	10.0	31	16	1.00
21	FOREST HILLS	44	309,401	312,450	97.7	97.8	98.0	6.0	38	6	1.00
24	GARFIELD	31	2,062,057	397,000	97.7	97.4	84.3	7.1	26	5	1.16
25	GEORGETOWN	69	832,232	575,250	97.6	97.6	98.3	7.4	56	13	.99
26	GLOVER PARK	31	327,265	333,000	98.8	99.5	98.7	4.6	27	4	1.01
28	HILLCREST	23	110,500	99,000	98.8	102	99.6	11.8	16	7	1.02
29	KALORAMA	113	543,187	475,000	97.0	97.0	96.2	4.5	105	8	1.01
31	LEDROIT PARK	37	476,327	440,000	95.1	98.5	98.8	6.9	31	6	1.00
33	MARSHALL HEIGHTS	1	49,000	49,000	145.9	146	145.9	.0	0	1	1.00
36	MOUNT PLEASANT	141	485,157	470,000	97.8	97.8	98.1	5.4	124	17	1.00
37	N. CLEVELAND PARK	3	405,000	387,500	97.2	100	100.3	2.9	2	1	1.00
38	OBSERVATORY CIRCLE	52	525,500	440,000	95.5	95.2	92.7	6.8	48	4	1.03
39	OLD CITY #1	223	448,192	420,000	96.0	96.7	96.2	6.6	190	33	1.01
40	OLD CITY #2	739	481,841	443,000	97.0	97.4	97.1	6.0	649	90	1.00
	PALISADES	10	242,872	237,000	95.0	97.4	97.0	4.6	8	2	1.00
42	PETWORTH	48	341,431	302,450	95.0	99.3	97.6	8.2	42	6	1.02
43	RANDLE HEIGHTS	1	58,000	58,000	134.7	135	134.7	.0	0	1	1.00
46	SW WATERFRONT	117	338,457	312,000	93.1	92.9	92.9	7.0	111	6	1.00
49	16TH STREET HEIGHTS	18	315,125	302,500	98.7	97.6	97.9	5.9	16	2	1.00
	TRINIDAD	14	246,889	225,824	95.0	95.0	94.7	5.8	11	3	1.00
53	WAKEFIELD	15	351,760	314,000	91.2	90.6	90.3	9.5	13	2	1.00
54	WESLEY HEIGHTS	41	416,145	449,000	94.2	94.7	95.0	9.7	36	5	1.00
56	WOODRIDGE	4	176,725	121,000	104.5	103	99.6	3.7	3	1	1.03
66	FORT LINCOLN	9	266,356	267,500	87.5	95.4	93.2	14.7	6	3	1.02
TOT	TALS:										
PRO	OPERTY TYPE SALES	AVE PR		RICE MEDIA	AN MEAI	N WE	GHTED C	OD < 1		105	PRD
Cor	ndominium 3,020	496,	731 415	,000 96.8	96.9	9	95.0 7	1.1 2,6	505	415	1.02

2014 SALES RATIOS BY NEIGHBORHOOD: MULTI-FAMILY

NB	NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD	< 105	> 105	PRD
2	ANACOSTIA	3	588,588	710,000	98.3	96.8	96.4	2.8	3	0	1.00
3	BARRY FARMS	1	3,460,000	3,460,000	105.5	106	105.5	.0	0	1	1.00
7	BROOKLAND	2	3,751,000	3,751,000	96.5	96.5	99.4	3.5	2	0	.97
9	CAPITOL HILL	3	1,648,760	1,500,000	94.0	80.5	72.9	18.2	3	0	1.10
10	CENTRAL	1	1,410,000	1,410,000	109.8	110	109.8	.0	0	1	1.00
11	CHEVY CHASE	1	7,225,000	7,225,000	99.9	99.9	99.9	.0	1	0	1.00
13	CLEVELAND PARK	1	7,400,000	7,400,000	81.2	81.2	81.2	.0	1	0	1.00
15	COLUMBIA HEIGHTS	7	2,335,000	1,950,000	90.4	88.3	87.9	9.9	7	0	1.00
16	CONGRESS HEIGHTS	11	943,191	971,000	99.8	96.1	96.9	11.1	8	3	.99
18	DEANWOOD	2	608,750	608,750	101.2	101	102.2	4.1	1	1	.99
19	ECKINGTON	1	2,950,000	2,950,000	97.8	97.8	97.8	.0	1	0	1.00
22	FORT DUPONT PARK	1	549,000	549,000	100.0	100	100.0	.0	1	0	1.00
28	HILLCREST	1	2,150,000	2,150,000	105.9	106	105.9	.0	0	1	1.00
29	KALORAMA	3	7,586,667	1,585,000	91.3	90.9	91.5	.8	3	0	.99
33	MARSHALL HEIGHTS	3	705,833	700,000	103.5	102	102.6	1.2	3	0	1.00
36	MOUNT PLEASANT	2	2,820,500	2,820,500	92.0	92.0	85.9	10.3	2	0	1.07
39	OLD CITY #1	3	948,900	875,000	98.2	106	101.5	9.9	2	1	1.05
40	OLD CITY #2	5	23,485,000	2,825,000	96.5	93.1	95.9	14.6	4	1	.97
42	PETWORTH	4	2,116,250	2,105,000	117.9	112	108.8	6.0	1	3	1.03
43	RANDLE HEIGHTS	5	866,482	550,000	127.1	120	124.0	15.0	2	3	.97
48	SHEPHERD PARK	1	1,030,000	1,030,000	87.7	87.7	87.7	.0	1	0	1.00
52	TRINIDAD	1	405,000	405,000	91.0	91.0	91.0	.0	1	0	1.00
56	WOODRIDGE	1	850,000	850,000	115.7	116	115.7	.0	0	1	1.00
т∩г	TALS:										
_	OPERTY TYPE SALES	AVE PR	RICE MED PE	RICE MEDIA	AN MEAI	√T 1√1 Er -	IGHTED C	!OD <	105 >	105	PRD
	lti-Family 63	3,701,	-	-			-	4	47	16	1.03
ıνıα.	rcr-ramrry 03	J, /UI,	.003 1,110	,000 20.	5 50.	ر	90.0 II	. 4	4/	Τ0	1.03

2014 SALES RATIOS BY NEIGHBORHOOD: COMMERCIAL

NB	NAME	SALES	AVE PRICE	MED PRICE	MEDIAN	MEAN	WEIGHTED	COD ·	< 105 >	105	PRD
1	AMERICAN UNIVERSITY	1	2.150.000	2,150,000	96.6	96.6	96.6	. 0	1	0	1.00
	ANACOSTIA	1	263,520	263,520		101	101.1	.0	1	0	1.00
	BARRY FARMS	2	1,975,000		85.6	85.6	90.6	8.6	2	0	.95
5	BRENTWOOD	11	3,452,750		94.5	103	94.6	16.8	7	4	1.09
6	BRIGHTWOOD	1	32,100,000	32100000	116.6	117	116.6	.0	0	1	1.00
7	BROOKLAND	8	1,451,250	800,000	73.8	73.5	75.3	20.5	8	0	.98
9	CAPITOL HILL	6	1,377,833	872,500	75.5	72.8	79.5	19.6	6	0	.92
10	CENTRAL	39	83,949,231	16500000	95.6	94.1	96.1	9.1	33	6	.98
12	CHILLUM	1	200,000	200,000	95.8	95.8	95.8	.0	1	0	1.00
	COLUMBIA HEIGHTS	18	1,036,105	550,000	89.2	86.0	73.5	18.2	15	3	1.17
16	CONGRESS HEIGHTS	5	245,400	240,000	98.5	90.2	84.3	22.4	3	2	1.07
18	DEANWOOD	3	938,333	925,000	93.0	80.6	62.5	24.1	2	1	1.29
19	ECKINGTON	4	915,000	925,000	71.1	75.6	77.1	7.8	4	0	.98
20	FOGGY BOTTOM	3	832,333	512,000	80.3	80.2	76.2	7.5	3	0	1.05
21	FOREST HILLS	2	12,237,500	12237500	89.5	89.5	98.1	10.8	2	0	.91
24	GARFIELD	1	2,100,000	2,100,000	80.4	80.4	80.4	.0	1	0	1.00
25	GEORGETOWN	15	8,261,133	1,300,000	92.3	93.8	95.1	9.2	14	1	.99
26	GLOVER PARK	1	1,150,000	1,150,000	88.5	88.5	88.5	.0	1	0	1.00
29	KALORAMA	2	1,725,000	1,725,000	108.6	109	118.2	19.8	1	1	.92
30	KENT	1		14925000	97.8	97.8	97.8	.0	1	0	1.00
31	LEDROIT PARK	1	890,000	890,000	52.9	52.9	52.9	.0	1	0	1.00
32	LILY PONDS	1	3,100,000	3,100,000	77.4	77.4	77.4	.0	1	0	1.00
35	MICHIGAN PARK	2	225,000	225,000	70.6	70.6	68.8	23.0	2	0	1.03
36	MOUNT PLEASANT	8	3,206,250	1,162,500	89.8	93.6	91.1	12.0	7	1	1.03
37	N. CLEVELAND PARK	1	710,000	710,000	92.6	92.6	92.6	.0	1	0	1.00
38	OBSERVATORY CIRCLE	1	876,960	876,960	101.5	101	101.5	.0	1	0	1.00
39	OLD CITY #1	20	2,338,095	852,500	91.6	90.5	92.9	17.3	17	3	.97
40	OLD CITY #2	18	3,205,308	1,450,000	61.5	75.3	74.7	39.0	16	2	1.01
41	PALISADES	1	2,550,000	2,550,000	107.8	108	107.8	.0	0	1	1.00
42	PETWORTH	8	440,308	450,000	95.6	97.8	97.4	5.6	6	2	1.00
48	SHEPHERD PARK	1	2,100,000	2,100,000	85.6	85.6	85.6	.0	1	0	1.00
49	16TH STREET HEIGHTS	3	886,667	835,000	85.7	88.88	87.4	3.8	3	0	1.02
51	TAKOMA PARK	4	3,178,059	785,000	108.3	107	83.3	23.8	2	2	1.29
52	TRINIDAD	3	1,788,333	625,000	93.0	83.7	91.8	10.0	3	0	.91
53	WAKEFIELD	1	1,350,000	1,350,000	95.9	95.9	95.9	.0	1	0	1.00
56	WOODRIDGE	12	1,063,250	675,000	87.5	81.8	83.7	14.9	11	1	.98
TOT	TALS:										
	OPERTY TYPE SALES	AVE PI	RICE MED PE	RICE MEDIA	AN MEAI	NE:	IGHTED C	OD < 1	105 >	105	PRD
		17,850					95.5 16		179	31	.93
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